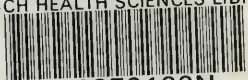


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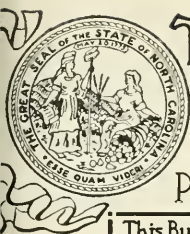
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The Health Bulletin

Published by THE NORTH CAROLINA STATE BOARD OF HEALTH

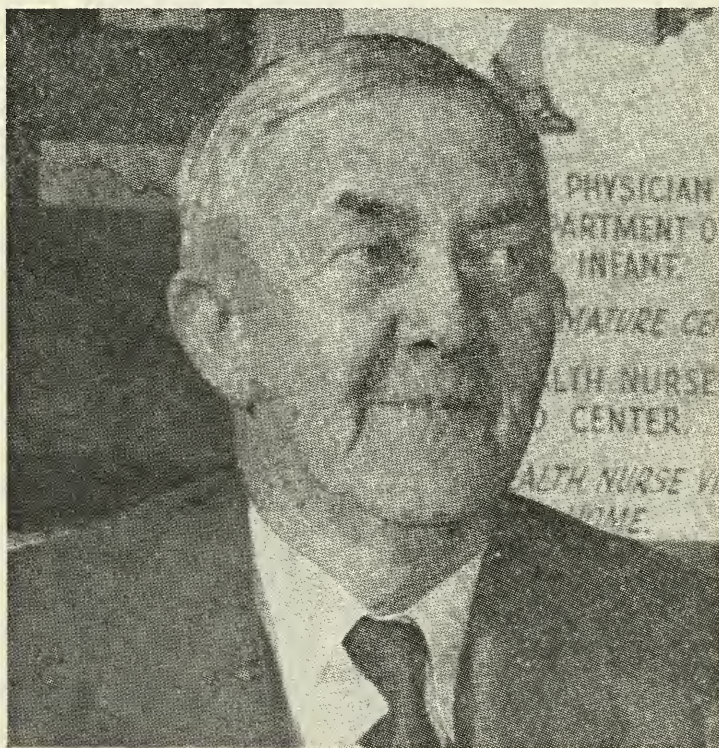
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Vol. 66

JANUARY, 1951

No. 1



GEORGE MARION COOPER, M.D.

1876 - 1950

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FREE HEALTH LITERATURE

The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

Adenoids and Tonsils	Hookworm Disease	Typhoid Fever
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Cancer	Influenza	Venereal Diseases
Constipation	Malaria	Residential Sewage
Diabetes	Measles	Disposal Plants
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SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, N. C.

Prenatal Care.	First Four Months.
Prenatal Letters (series of nine monthly letters).	Five and Six Months.
The Expectant Mother.	Seven and Eight Months.
Infant Care.	Nine Months to One Year.
The Prevention of Infantile Diarrhea.	One to Two Years.
Breast Feeding.	Two to Six Years.
Table of Heights and Weights.	Instructions for North Carolina Midwives.
Baby's Daily Schedule.	Your Child From One to Six
	Your Child From Six to Twelve
	Guiding the Adolescent

CONTENTS

Page

Tributes to Dr. George Marion Cooper	3
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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

GEORGE MARION COOPER, M.D.—1876-1950

THE HEALTH BULLETIN sorrowfully marks the passing of Dr. George Marion Cooper, for nineteen years its editor and for thirty-five years a distinguished member of the staff of the North Carolina State Board of Health.

We dedicate the pages of this issue to a partial expression of appreciation of the man and the good service which he rendered in promoting the health of all the people of North Carolina.

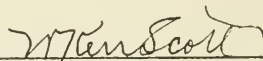


STATE OF NORTH CAROLINA
GOVERNOR'S OFFICE
RALEIGH

W KERR SCOTT
GOVERNOR

In the death of Dr. George Marion Cooper, Assistant State Health Officer, North Carolina has lost a faithful public official and humanity a devoted friend. He was interested in and gave his efforts to the solution of more public health problems than any other man of his generation. Although he was qualified for leadership in any phase of public health work, he was willing to serve in the ranks. However, he was looked to for advice and guidance by every State Health Officer and every other Health Official with whom he worked.

Dr. Cooper was able to place himself alongside those he served; to interpret their problems and minister to their needs in a sympathetic and effective manner. He was able to serve his State over a period of many years without assuming any attitude of proprietorship. On the contrary, he remained a faithful servant of the people. He occupied a place in North Carolina history which was unique. In his relationship to Church and State, Dr. Cooper gave his best.


Governor

January 3, 1951

RESOLUTION OF RESPECT TO THE LATE DOCTOR GEORGE MARION COOPER

The following Joint Resolution, introduced in the Senate by Senator Paul Jones, was placed upon its immediate passage by unanimous consent on January 17, 1951, then sent by special messenger to the House which took similar action. The Resolution was passed and ratified on the same day.

WHEREAS, the death of Dr. George Marion Cooper, Assistant State Health Officer, which occurred on Monday, December 18, 1950, removed from our midst one of the greatest Public Health officials and humanitarians North Carolina has ever known; and

WHEREAS, his efforts in behalf of the underprivileged, especially among mothers and babies, not only were signally outstanding, but bore widespread and beneficial results in every part of our State;

Now, therefore, be it resolved by the Senate, the House of Representatives concurring:

Section 1. That official recognition be given the life and services of this distinguished and useful native of Sampson County, who, for thirty-five years was associated with the State Board of Health.

Sec. 2. That a copy of this resolution be given the Secretary and State Health Officer, and copies to Doctor Cooper's three surviving children.

Sec. 3. That today's adjournment be in honor of Doctor Cooper.

Sec. 4. That this resolution shall be in full force and effect from and after its ratification.

Jan. 17, 1951

TRIBUTES TO DR. G. M. COOPER

When advised of the death of Dr. G. M. Cooper, Assistant State Health Officer, Dr. J. W. R. Norton, Secretary and State Health Officer, made the following statement:

"North Carolina has lost its greatest Public Health Official of all time. He served longer, engaged in more activities and did more to make North Carolina Public Health conscious and to minister to its Public Health needs than any man in the history of the State. He pioneered more Public Health services than any other man I know, not only in North Carolina but in the nation. Both personally and professionally he had few peers, if any, and no superiors anywhere. His was constantly an up-hill fight against ignorance, misinformation, indifference and short-sighted selfish interests. The two greatest groups of his beneficiaries were under-privileged mothers and children, in whose behalf

he not only worked unceasingly and for whose relief he was instrumental in securing millions of dollars in public funds, which he administered where they would do the most good among the greatest number of people. During his service with the State Board of Health, the maternal death rate was reduced to one-fourth and the infant death rate to one-half of those rates prevailing in North Carolina when his service began. This progress was due to the work of many devoted physicians and assisting personnel; Dr. Cooper was the patient planner, the dauntless and resourceful leader, the tireless worker.

"I feel in the passing of Dr. Cooper an over-whelming sense of personal loss. In generations to come, the descendants of those he has helped will rise up and call him blessed. His sympathies were broad and he worked tirelessly in behalf of those he sought to

serve, and without hope of personal aggrandizement. He was not only a pillar of strength in the Public Health structure, but ever mindful of his family and personal friends and just as zealous in the work of the Presbyterian Church, of which he was a life-long member and a ruling elder at the time of his death. He was my personal friend and the personal friend of all who worked with him in any capacity. Our best expression of faith in and love for him will be through closing ranks and marching on toward the goals toward which he strove so long and so well."

Dr. Clyde A. Erwin, State Superintendent of Public Instruction, paid this tribute to the late Dr. Cooper:

"I feel a deep personal loss in the death of Dr. Cooper. He has been a dear friend of mine for many years. In addition I consider his loss to the State irreparable. No one in my opinion has given of himself more unselfishly nor

more effectively in the service of the people. His keen understanding of the problems of public health and his dedication to the solution of these problems is a landmark along the road of human progress."

Statement by Dr. Ellen Winston, Commissioner of Public Welfare, on the death of Dr. George M. Cooper.

"In the passing of Dr. George M. Cooper, the State Board of Public Welfare, has lost a staunch supporter and friend. His loss will be felt by welfare workers throughout the State who have known and loved him. He was ever mindful of the importance of the united efforts of health and welfare in his work in promoting North Carolina's health program. As an eminent citizen and devoted leader in seeking social betterment, Dr. Cooper made a lasting contribution to this State and to the nation."

A GREAT PHYSICIAN

When a North Carolinian who has been taking notice of public affairs for a quarter of a century reflects on the length, breadth and depth of the service of Dr. George Marion Cooper, assistant state health officer who died at Raleigh early Monday morning, he is constrained to conclude: Here was the public servant made perfect.

It will have been printed elsewhere in the Daily News, but we think any estimate by an editorial commentator should include the tribute paid him by Dr. Roy Norton, state health officer:

He served longer, engaged in more activities and did more to make North Carolina public health conscious and to minister to its public health needs than any man in the history of the state. He pioneered more public health services than any other man I know, not only in North Carolina but in the nation. Both personally and professionally he had few peers, if any, and no superiors anywhere. He was constantly an uphill

fighter against ignorance, misinformation, indifference and short-sighted selfish interest. The two greatest groups of his beneficiaries were underprivileged mothers and children, in whose behalf he worked unceasingly and for whose relief he was instrumental in securing millions of dollars in public funds, which he administered where they would do the most good for the greatest number of people . . . In generations to come, the descendants of those he helped will rise up and call him blessed.

Ordinarily we are inclined to discount estimates made by professional, business or governmental associates who know what they are expected to say, but Dr. Norton is as objective as would be any good reporter who has for years seen Dr. Cooper in action.

If we were called upon to name his greatest characteristic, we'd make it courage. He was himself frail, with a deafness which kept him from being chosen as chief of the health service

more than once; but this may have been at times of assistance to him in his work. Certainly he refused to listen to counsel of the faint of heart; there was no contact between him and those who feared the political effect of any movement for bettering health conditions.

But if he were resolute, none could question his willingness to work in harness. His fellow workers all down the years have sworn by him, and in his entire public lifetime, which was one a few years shorter than the lifetime of

the Daily News, there has never to our knowledge been offered a printed word of disparagement of Dr. Cooper by a responsible citizen.

Even when there was objection by doctors of medicine to some his advanced steps in caring for the health of school children the objectors soon subsided and without daring to question the good faith of a really great physician.

—Greensboro Daily News, Dec. 20, 1950

UNSELFISH SERVICE

The death of Dr. George M. Cooper marks the end of a career of a man who served his fellow man, his State and his profession with unselfish devotion for four decades.

It would be difficult to overestimate the value of Dr. Cooper's services. As a young physician in Sampson County he saw the need for carrying advanced medical knowledge to all of the people. In his own practice he was the first physician in this State to use typhoid vaccine in North Carolina.

He soon extended his practice to the entire State, joining the then young State Health Department in 1915 and serving as Assistant State Health officer from 1923 until his death yesterday.

Dr. Cooper's primary work was in the fields of maternal and child health. No state has made more progress in those important fields in the last 30 years than has North Carolina. And for much of that progress the State is indebted to the tireless labor of this self-effacing man.

Dr. Cooper's labors were by no means confined to maternal and child health. Those labors embraced the whole area of public health and he has left his mark in that entire field.

North Carolinians are grateful to this pioneer in public health work, who always placed the well being of the many above the good of the few.

Raleigh News & Observer

WAS A HEALTH PIONEER

Dr. George M. Cooper, pioneer public health official and Assistant State Health officer in North Carolina since March 1, 1923, was in a very large measure responsible for the fact that the North Carolina Health Department stood among the first in this Nation.

Dr. Cooper was a native of Sampson County. He became interested in public health work and might well be credited with being first to realize the need for making possible hospital and medical facilities for the rank and file of the

people of this State.

Dr. Cooper was said to be the first physician in North Carolina to use typhoid fever vaccine. Dr. Roy Norton, State Health Officer, paid deserved tribute to Dr. Cooper, who was not only his assistant but assistant to his predecessors and often served as Acting Health Officer. Dr. Norton said of him that he was North Carolina's "greatest public health official of all time."

Only because of his affliction with total deafness and his self sacrificing

modesty kept George Cooper from being not the assistant but the State Health Officer for the past 25 or more years.

The Free Press is glad to add a tribute to his memory. He served long after the usual retirement age, being 74 when he died Monday in Raleigh. In the days when county health departments were few and far between in

North Carolina and the progressive county of Lenoir became the second county in the State to provide full time service, Dr. Cooper rendered much help in getting things started.

He was an honor to his profession, a Christian gentleman and his good work will be felt by generations yet unborn.

—Kinston (N. C.) Daily Free Press

DR. GEORGE M. COOPER

Funeral services for Dr. George Marion Cooper, assistant State health officer since March, 1923, will be conducted Tuesday morning at 11 o'clock from the First Presbyterian Church here. Dr. Cooper, 74, died at Rex Hospital early yesterday morning after more than a week of critical illness with a heart ailment. Dr. J. A. Christian, pastor of the First Presbyterian Church, and Dr. H. P. Powell of Edenton Street Methodist Church will officiate at the rites. Afterward, the body will be taken to the Royall Funeral Home in Clinton, where it will lie in state from 12:45 to 1:45 p. m. Burial will follow in the Clinton Cemetery. The body will remain at Pennington-Smith Funeral Home here until just prior to the 11 a. m. rites. Pallbearers will be Drs. A. C. Bulla, John H. Hamilton, Roy Norton and

Thomas Worth, all of Raleigh; Dr. Street Brewer of Clinton; and C. B. Taylor, Fred Harding and Jeff D. Johnson, Jr., all of Raleigh. A public health pioneer at both the State and national levels, he had been with the State Health Department for 35 continuous years. Earlier he had been a general practitioner in his native Sampson County, where he was the first Tar Heel physician to use typhoid vaccine. Survivors include three children, Dr. George M. Cooper, Jr., of Raleigh, John Phil Cooper of Winston-Salem, and Mrs. A. Sam Krebs of Cincinnati, Ohio; one brother, Thomas Cooper of Petersburg, Va.; a sister Mrs. Bard Fitzgerald of Gretna, Va.; and three grandchildren.

—Raleigh News and Observer,

Dec. 19, 1950

BIOGRAPHICAL SKETCH OF GEORGE MARION COOPER, M.D., LL.D.

BY WILLIAM H. RICHARDSON.

State Board of Health, Raleigh, N. C.

Born in Clinton, North Carolina, April 24, 1876. Educated in public and private schools of Sampson County. Taught school in public and high schools of Sampson County 1897 to 1901. Graduated in medicine at the University College of Medicine in Virginia at the end of four years' attendance, 1905. Licensed to practice medicine in North

Carolina in Greensboro 1905. Located at once in Clinton, forming a partnership with Dr. Frank H. Holmes. This partnership continued active for about eight years, both physicians doing general practice with a great deal of surgery, obstetrics and gynecology.

Soon after beginning practice, Dr. Cooper became interested in some

method of controlling the ravages of typhoid fever and the terribly high death rate from colitis and similar diseases among infants, and in helping to countermand the death warrant which in those days hung over a patient as soon as a diagnosis of tuberculosis was made, by joining the movement for early diagnosis and rational treatment. Dr. Holmes died of tuberculosis eighteen months after the partnership was discontinued. Then Dr. Cooper quit private practice to devote his full time to preventive medicine and public health work.

As part time County Physician of Sampson County from 1909 to 1913, with the aid of the Mayor and Town Board, Dr. Cooper cleaned up the town of Clinton and used the first typhoid vaccine used by any physician in North Carolina as an experiment in mass control and prevention of typhoid fever by vaccination of the civil population. For twenty-one months following this work in 1911 and 1912, there was not a case of typhoid fever in that town for the first time in its history.

October 1, 1913 he became a full time health officer of Sampson County, being about the fifth such local health officer in North Carolina. During 1914, he conducted with the aid of the International Health Board two experiments in community sanitation, one at Salemburg and the other at Ingold. Notable and lasting results were achieved in both, which afforded guidance for subsequent work elsewhere.

He was President of the Sampson County Medical Society in 1910, and President of the North Carolina Public Health Association in 1913 and 1914. He was appointed head of the Department of Rural Sanitation and a member of the executive staff of the North Carolina State Board of Health and moved to Raleigh and assumed these duties May 1, 1915.

In 1917, he was made head of the school health work for the State Board with the title of State Medical Inspector of Schools. In that position he planned and put into operation in 1918 the system of dental work for all State

public school children and engaged and supervised the first dentists for school health work. That year he was made an honorary member of the State Dental Society, an honor continued to this day and valued highly. Under the system, since gradually expanded, more than three million school children have received free treatment, to make no mention of the most important aspect of the work, education. In 1919, he devised and put into effect the system of club operation for the removal of diseased tonsils and adenoids of school children, and supervised these clinics for most of the time until 1931. Operations were performed on 23,211 children living in every school district in 86 of the State's 100 counties, with the lowest mortality record in the history of such work in the United States. The educational effect of these two movements for better health for all children has been incalculable.

On March 1, 1923, he was appointed Assistant State Health Officer and Editor of the Health Bulletin continuing as Editor until 1942. From September 1, 1923, to September 1, 1924, during the year's leave given Dr. W. S. Rankin, State Health Officer, for work in New York, Dr. Cooper again became Acting State Health Officer. Upon the return of Dr. Rankin September 1, 1924, he was continued as Assistant State Health Officer, Director of Health Education, until the resignation of Dr. Rankin May 30, 1925, when he was again made Acting State Health Officer and served in this capacity until the assumption of office by Dr. C. O'H. Laughinghouse October 1, 1926. During Dr. Laughinghouse's term of office until his death August 26, 1930, Dr. Cooper was Director of Health Education.

Upon election of Dr. J. M. Parrott as State Health Officer on July 1, 1931, he became Director of the Division of Preventive Medicine in the reorganized State Board of Health. This Division comprised School Health Work, Maternal and Child Health Services, Health Education, editorial work, etc. This work continued until the death of Dr. Parrott, November 7, 1934. He was Act-

ing State Health Officer during the interval between Dr. Parrott's death and the beginning of Dr. Carl V. Reynolds' administration as Health Officer.

In 1934 Doctor Cooper was unanimously elected President of the Raleigh Academy of Medicine. Upon assumption of duties as State Health Officer by Dr. C. V. Reynolds, November 10, 1934, following the death of Dr. Parrott, Dr. Cooper was elected Assistant State Health Officer and reelected four time since, his present term to expire July 1, 1951. His other duties were the same as during the Parrott administration, and in addition as Director of Maternal and Child Health Services for the United States Children's Bureau, he has had the responsibility of administering the Emergency Maternity and Infant Care work for service wives. During the war period, approximately 44,600 maternity and infant cases were aided to the extent of having their doctor and hospital bills paid.

In 1941, Dr. Cooper was elected President of the North Carolina Conference for Social Service.

In 1942, Dr. Cooper was the recipient of one of the highest honors that can come to a citizen of North Carolina when the University of North Carolina conferred upon him the honorary degree of Doctor of Laws in recognition of his work in Health Education. In conferring the degree, President Frank P. Graham read the following citation:

"GEORGE MARION COOPER, of Sampson County, nationally distinguished as a public health officer, quiet and unassuming but relentlessly effective, he has as state health officer served for a longer period and in more fields than any other person. He has been a leader in practical programs for the medical care of the poor and has worked courageously to lift North Carolina

from the disgrace of its high birth mortality of children and mothers. His work, pioneering in America, both for the improvement of the health of school children through free dental and tonsil clinics, and for the improvement of the health of mothers and the birth of children, has become and will continue to be an example to this and other nations and a benefaction to this and succeeding generations."

The honor which the Ladies of the State Auxiliary conferred upon him by naming the Bed in the Eastern North Carolina Tuberculosis Sanatorium at Wilson for him is highly prized and will be gratefully cherished by his children and many friends always.

Dr. George M. Cooper, head of the Division of Preventive Medicine, North Carolina Health Department, honored with a 1949 Lasker Award of the Planned Parenthood Federation of America for outstanding services in maternal and child health and for his efforts in making his State the first in the Union to include birth control in its public health services.

On April 24, 1950, he celebrated his 74th birthday probably by putting in a hard day's work and on May 1, he observed the completion of thirty-five years' continuous work on the staff of the State Board of Health.

The above is just a brief part of the record, and does not describe the intensity with which he had put himself, mentally and physically, into many years of efforts to improve the health of the citizens of North Carolina, and the many lives he has been instrumental in saving, particularly mothers and babies. As the shadows lengthened rapidly toward the west for him, his one regret was that he had not been able to accomplish more for the plain people of North Carolina.

DR. GEORGE M. COOPER — AN APPRECIATION

EARNEST A. BRANCH, D.D.S., *Director of Oral Hygiene Division*
North Carolina State Board of Health

In the death of Dr. George M. Cooper on December 18, 1950, North Carolina dentistry lost one of its best friends. It was Dr. Cooper, a physician directing the Bureau of Medical Inspection of Schools of the North Carolina State Board of Health, who conceived and promoted the idea of including dentistry in the State's Public Health Program.

This was in 1918. Appearing on the program of the North Carolina Dental Society during their meeting in the old Oceanic Hotel at Wrightsville Beach, Dr. Cooper outlined a proposed plan of dental health education. This plan provided for employing full time dentists on the staff of the State Board of Health and for sending these dentists into the schools of the State to teach Mouth Health and to make dental corrections for the underprivileged children. From the beginning the objective was health education.

The proposal came from an understanding heart and mind. Dr. Cooper knew from personal experience the suffering caused from lack of dental attention in childhood. He knew from his experience as a physician and a public health worker the great need for dental health education and for dental service among our children.

Dr. Cooper's presentation before the Dental Society struck a responsive chord, and it was Dr. J. Martin Fleming of Raleigh who made the motion that the North Carolina Dental Society go on record as heartily endorsing the plan and that the Society pledge Dr. Cooper their loyal support. This was done, and North Carolina became the first State to put dentistry in its Public Health Program.

Dr. Cooper, assisted by members of the dental profession, went before the State Legislature and secured funds with which to begin operations. Several young dentists were employed, and, from that day to this, the program has been functioning.

Because of the vision and work of this public health pioneer thousands and thousands of children have received their first dental service, thousands and thousands and thousands of teeth have been saved, North Carolinians have become more and more Mouth Health conscious, and dentistry's health services are more widely recognized and appreciated. Dr. George M. Cooper was truly a great benefactor of the children and of the dental profession of North Carolina.

January, 1951

GEORGE MARION COOPER, M.D., 1876-1950

By WALTER J. HUGHES, M.D.

Bennett College, Greensboro, North Carolina

John Milton in his sonnet "On His Blindness" said, "They also serve who only stand and wait." Milton was blind; Cooper had defective hearing. George Marion Cooper did not serve by standing and waiting, but projected his personality, with arduous activity, into all the significant social movements of his

time. He brought to the field of public health and preventive medicine the force of his intellect, his creative ability, and great imagination. His achievements were epical. He was an able public health statesman, a courageous and fearless spokesman in all things that mitigated against the health and

welfare of the people of this commonwealth. His administrative ability has been most constructive in the reduction of maternal and infant mortality, in school health services, and in the advancement of preventive medicine in general. During his entire tenure as a health officer, he indicated to all the people the democratic way of living. He was impartial in the relationship with all of his subordinates and believed in

equality of opportunity in order that all the people might share in being lifted up to a higher standard of usefulness and healthful living. His counsel was sought by many and his advice was full of wisdom and as soothing as the benediction that follows after prayer. For all of these things the people of North Carolina, and the generations yet to come, owe him a lasting debt of gratitude.

TO THE EDITOR

To the Editor:—Somehow I passed over in the news the death of Dr. G. M. Cooper, and am indebted for the information to the brief eulogies by Nell Battle Lewis and C. A. Upchurch, Jr., in the News and Observer. I wish to add a personal tribute to him as not only an able and zealous crusader for public health, but especially as a warm-hearted, friendly human. I became acquainted with him years ago through an occasional article I offered to the State Health Bulletin, of which he was so long the able editor.

As a friend I pay tribute to two rare characteristics which I have seldom seen equaled in another. Few have such a capacity for warm, generous friendship; few such a cheerful and delightful mastery of a personal handicap. His deafness he simply accepted and turned into a pleasing virtue. Cheerfully and gracefully and unobtrusively he seated you in front of him, turned the receiver of his hearing apparatus toward you, and talked delightfully without a trace

of embarrassment or restraint. It was the zeal of one in love with life, love for his job, and love for his friends and co-laborers. It was the mark of a healthy mind and of a full-grown personality.

Few have been so generous to recognize and heartily to praise any worth or ability seen in another. Delightfully unconscious of his own talents and achievements, he was always alert and eager to discover and praise any talent or virtue or accomplishment seen in another. Perhaps this is the highest attainment of a healthy mind and of unalloyed greatness. Face to face, by phone, or through the mail, and with the heartiness of a father to a son, he passed on to the writer of an article he used in the Health Bulletin any favorable reaction that came to him as editor.

I loved and admired him as few other friends of a lifetime, and I fear I "shall not look upon his like again."

—S. L. Morgan, Sr.

Wake Forest

GEORGE MARION COOPER, M.D.

BY THE EDITOR

In the passing of George Marion Cooper thousands upon thousands of people felt a deep sense of personal loss. It is impossible to write about him without emotion. For more than thirty-seven years he had been a wholetime

public health physician. Even before he became health officer in his own Sampson County he had, as a practitioner, seen the dire need of his patients and had been doing much in the field of preventive medicine. With this back-

ground Dr. Cooper felt the call to devote his life to public health just as genuinely as any minister of religion ever felt the call to preach the Gospel of Jesus Christ. To Dr. Cooper the desire to save human beings from disease and the prolongation of their lives was a compelling force. To this cause he dedicated his life.

When the history of public health in North Carolina is written it will be essentially a biography of George Marion Cooper. Public health was in its infancy when he entered the specialty. During the long period of service with the State Board of Health he witnessed much growth and expansion. Early successes in the effort to reduce the prevalence of infectious diseases resulted in a growing appreciation of public health, increases in appropriated funds, additional workers were recruited, more problems were attacked and new programs developed. In fair weather and foul—his was a stabilizing and wholesome force. In most successful endeavors he was a guiding and sustaining influence. When mistakes were made and things went wrong it was frequently because his advice was not sought or was ignored. Although North Carolina has contributed many illustrious names to the Honor Roll of Public Health, Dr. Cooper's long career in North Carolina caused many throughout the nation to consider him as "Mr. Public Health in North Carolina."

There will probably be some disagreement in selecting Dr. Cooper's outstanding qualifications. To those who read history his ability to make long-range plans would probably be placed first. It would require much research work to list all of the programs which were started by him. Three of his early campaigns demonstrate the range of his planning. Take the tonsil-adenoid clinic for instance, the initial objective was, of course, to cure the trouble caused by diseased tonsils and adenoids, but the long-range effect was to educate the people as to the value of competent adequately trained medical specialists. Most of the older, Eye, Ear, Nose and Throat physicians in the State appreciate the firm

foundations of public confidence built by Dr. Cooper's early clinics. The Dental Program, started in 1918 while Dr. Cooper was directing the School Health work, resulted in Dr. Cooper's election as an honorary member of the State Dental Society, and laid the foundation for the formation of the Division of Oral Hygiene in 1931. The Orthopedic Clinics organized by him have smoothed the way for thousands of crippled children for years past and will offer hope for the crippled children of the future. It is no wonder that orthopedic surgeons were among the first to suggest a suitable memorial to Dr. Cooper.

As Editor of the Health Bulletin for nineteen years, he established the format which has become recognized as a symbol of North Carolina's Health Program. While other State Boards of Health have considered it advisable to streamline their publications or to make them into picture magazines, the Health Bulletin has remained, and with the help of a kind Providence will remain, a plain little publication with a simple message—told in plain straight-forward words and go to the 60,000 homes, offices and libraries of the State and Nation each month.

There is much in Dr. Cooper's life and record to remind one of the Apostle Paul. Dr. Cooper's thorn in the flesh was deafness—it affected his life greatly—it deprived him of some honors that might have been bestowed upon him. He had a most remarkable memory,—probably part of this intellectual attainment was due to inherent ability. It would seem, however, to those who knew him intimately that a considerable degree of his most accurate memory was due to his defective hearing. He converted a defect into an asset. Dr. Cooper had courage, the courage to fight for that which he believed to be right—the courage to fight for those who could not defend themselves, the courage to fight those in high places who disregarded or were unmindful of the rights of all to a healthy existence. Dr. Cooper gave public health a sound doctrine—Like the Apostle Paul—he fought a good fight, finished his course,, and he kept the

Faith. The torch lighted by Thomas Fanning Wood passed on to Richard H. Lewis, to W. S. Rankin and to George M. Cooper still burns. Those who now receive the torch may not hold it as high or as steadily but they are solemnly dedicated to hold it tight and to endeavor to advance it without faltering.

Some of Dr. Cooper's own editorials in the *Health Bulletin* give a clear picture of what he considered the *Health Bulletin* should be—

NOTES AND COMMENT

January, 1939—"With this issue the *Health Bulletin* enters its fifty-fourth year, the present number being Number 1 of Volume 54. It has thus completed fifty-three years of its monthly visits to the citizens of the State of North Carolina who are interested enough to write and ask that it be sent to them.

This issue goes into seventy-six counties with organized full-time health department service, either on a county unit or a district basis, and in some instances with a city health department at the county-seat and a county health department functioning for the county.

The reader may compare the situation in this State now with reference to public health service with this month fifty-four years ago when Dr. Thomas Fanning Wood, the first State Health Officer, issued the first number. At that time the total appropriation for the State Board of Health work was \$2,000 annually. Dr. Wood, of course, worked on a part-time basis and a part-time clerk in his office wrote out the script in longhand for the first publication. Today in these seventy-six counties, there are more than five hundred full-time workers, including health officers, nurses, clerical help, sanitary inspectors and engineers, etc. This is exclusive of the State Board of Health organization and also exclusive of the many full-time employees of city water departments such as chemists and engineers. It is the conviction of this writer that no money that the State and the localities have ever spent has resulted in more benefit to the citizens than that of the health workers. Many of these workers are un-

known to the general public, their names seldom occur in the State papers, they are not given honorary degrees by the State's colleges, they are seldom ever any of them elected to office of any kind. Many of them receive daily complaints from citizens about trivial matters. Most of them take such patiently and try to explain the purpose of their work and the protection that it affords the people. The *Health Bulletin* as a monthly reminder throughout all these more than fifty years has served to keep before the people of the State many of the practical requirements of public health practice. All of the contributors and the editors who have managed the affairs of the *Health Bulletin* and who have tried to get it out month by month throughout the years have always had uppermost in their minds the hope that they would be providing information that might enable people to know how to protect themselves from preventable diseases and untimely deaths. About 46,000 numbers go out each month. As was pointed out some time ago, the little publication goes each month to people living at nearly 1,400 out of the 1,500 post offices in the State, it goes into every county and to some readers on almost every rural delivery route in the State.

The Editor is frequently encouraged in many unexpected ways. For example, sometime ago on a particularly blue Monday morning a card requesting that some special literature be sent to two individuals of a certain county was received. The card was dated at the particular town mentioned simply "Sunday night." It was sent in from a R. F. D. route and started off by saying: "Dear Editor, I hasten to assure you that your *Health Bulletin* is profitably read by many families who never write to say so." Then went on to add the names whom they wished to receive the *Health Bulletin* in the future.

It is pleasant to think that the idea expressed by the writer that the publication may be profitably read by families who never write to say so is a fact. Anyhow, it is hoped that that is a fact. An effort is always made in every issue to

try to publish at least one article carrying information which would be helpful to any reader. That idea has been the key effort running through every issue of the publication for many years. It is pleasant to know that there are readers comprising hundreds of young people who have set up housekeeping and who are now rearing families of their own whose parents received the *Health Bulletin* through the years and during which time the young folks became interested in the material published.

In the beginning of this new year, it seems to many people that there are more problems confronting the world than at any time since the close of the Dark Ages. The complexities of modern life and the strain of living today puts greater stress on the nervous system of the average individual than probably ever before in the history of the world. It is more necessary today to take thought of the physical, mental and moral health of the individual and of the public than ever before. On the other hand, more protection against pestilential diseases is afforded the people of the world today than ever before. In the past, great plagues such as yellow fever, bubonic plague, smallpox and other epidemic diseases have decimated the population of the world. It varies in the opinion of some historians to the extent of as much as 50 per cent of the population of the world at one time. With the exception of influenza, toward the control of which little progress has been made, the great cities and thickly populated sections of the world are in little danger. All of this is due directly to the protection afforded by the scientists and active workers in the public health field.

In the year that the *Health Bulletin* was first published, it was the common rule in North Carolina for every family to have typhoid fever among some of its members before the children of the family reached maturity, and it has been estimated that at least one out of four members of the average family died of the disease before all the other children reached maturity. The average family lost a large per cent of the

children born as a result of the diarrheal diseases of childhood before reaching the end of the first year of life.

There is a long way to go in the field of prevention of disease before the State reaches the position it ought to occupy as one of the low mortality States, in the matter of infant deaths and deaths from such diseases as diphtheria. Diphtheria can and should be completely prevented, but in the face of that fact the State has had a higher death rate from diphtheria and a higher case rate during the last two or three years than most of the other States. In the field of total infant deaths, it has had a little better record, but not much.

The discouraging feature of the past year's work has been that infant deaths have not continued the downward trend started the year before, but apparently a larger number have occurred than occurred in 1937, although complete and accurate data are not yet available.

It is with confidence that the faces of public health workers in this State are set toward the future, and it is hoped that the new year will result in greater progress in public health work than ever before in the history of the organization."

* * *

NOTES AND COMMENT

June, 1939—"On the front cover this month, we are publishing a picture of the old Dr. Thomas Fanning Wood residence, 201 Chestnut Street, Wilmington, North Carolina, where the State Board of Health office was first set up and operated for many years, and where the first issue of the *Health Bulletin* was published. That issue was April, 1886, 53 years ago. This picture was intended for the April issue of the *Health Bulletin* as an anniversary number, but illness of the editor prevented its appearing at that time.

As stated once or twice before in these columns, the *Health Bulletin* was founded by Dr. Wood while Secretary of the State Board of Health and issued regularly month by month from the office of the Board of Health which was

his private office in Wilmington. The publication continued regularly until his death in August, 1892.

Not long ago, the editor had the privilege of visiting in the home where Dr. Wood's two daughters, Misses Jane and Margaret Wood still live. They showed the editor the very room from which the Bulletin was issued through the years, from April, 1886 until his death in August, 1892. They informed the editor that Dr. Wood had associated with him a young physician at that time by the name of Dr. Robert Jewett who assisted him in doing some of the writing and the routine work of the office. They said that Dr. Jewett was still living in retirement at his home on Greenville Sound in New Hanover County. On May 6, the Associated Press announced from Wilmington that Dr. Jewett had died that morning at the age of 79.

As stated above, the Health Bulletin was founded by Dr. Wood and his advisers among the membership of the State Board of Health. With just a few alterations, the size and general appearance of the publication is the same today as it was the first issue. It is slightly larger and about twenty years ago, the present management of the Health Bulletin made some improvements in the title page and in page 3, which has been carried as changed ever since.

Dr. Wood was made Secretary and the first State Health Officer following the creation of the State Board of Health by the Legislature in 1877. Dr. Wood was at that time practicing medicine in Wilmington. He was coming to be a botanist of national reputation which he carried on as a hobby. He had also founded and conducted for several years up to that time the North Carolina Medical Journal, now known as Southern Medicine and Surgery and published in Charlotte. Sometime after Dr. Wood's death, Dr. Jewett obtained control of the North Carolina Medical Journal and owned and published it for some four or five years, when it was sold to Dr. Dickson Register, a native of Duplin County who was practicing

medicine in Charlotte and coming to be at that time a widely known physician. At Dr. Wood's death, however, Dr. R. H. Lewis of Raleigh succeeded him as Secretary and State Health Officer and immediately moved the office of the State Board of Health from Wilmington to Raleigh. The Bulletin has been issued monthly from Raleigh ever since. Dr. Wood and Dr. Lewis were both, of course, part time State Health Officers. The two of them combined served for more than thirty years in the office.

The first announcement of the publication of the Health Bulletin was made at the Conjoint Session of the North Carolina State Board of Health and the North Carolina State Medical Society at New Bern on May 20, 1886. Dr. J. W. Jones of Tarboro was president of the North Carolina State Board of Health and in his annual report to the Conjoint Session made the official announcement of the founding of the Health Bulletin in the following language quoted from the transactions of the North Carolina State Medical Society for that year. The record of the Health Bulletin for the following fifty years must accord to Dr. Jones a place as a major prophet. But with what sacrifice in time and labor only a few men know!

Dr. Jones: "Gentlemen of the Medical Society and the State Board of Health: From time to time and little by little, we have gotten the parts of the North Carolina Board of Health together. We occupy it. It is in motion . . .

"The North Carolina Board of Health, organized and equipped in all its departments (a part time State Health Officer, a part time stenographer, and a total annual appropriation of \$2,000!—Editor), with a monthly *Bulletin of Health*, through which we may communicate, correspond, and instruct, unites in Conjoint Session with the North Carolina Medical Society, to exchange views and purpose plans that shall best advance our common work of making our people healthier, happier, wealthier and wiser.

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The Health Bulletin

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Lake at Airlie Azalea Gardens, Wilmington, North Carolina

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FREE HEALTH LITERATURE

The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

Adenoids and Tonsils	Hookworm Disease	Typhoid Fever
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SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, N. C.

Prenatal Care.	First Four Months.
Prenatal Letters (series of nine monthly letters).	Five and Six Months.
The Expectant Mother.	Seven and Eight Months.
Infant Care.	Nine Months to One Year.
The Prevention of Infantile Diarrhea.	One to Two Years.
Breast Feeding.	Two to Six Years.
Table of Heights and Weights.	Instructions for North Carolina Midwives.
Baby's Daily Schedule.	Your Child From One to Six
	Your Child From Six to Twelve
	Guiding the Adolescent

CONTENTS

	Page
Aqua Pura	3
Today's Community Concept Of School Health	5
"These Little Ones"	8
Notes and Comment	11

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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

AQUA PURA

By WILLIAM H. RICHARDSON
Raleigh, North Carolina

The progressive action by which the citizens of Raleigh recently voted funds for the erection of a sewage disposal plant and the improvement of the public water supply, has focused attention upon water in its various uses and its association with Public Health.

Water is one of the most important, and sometimes neglected, substances used in helping to sustain life. When you woke up this morning, you brushed your teeth, washed your face and hands, and, perhaps, drank copiously of refreshing cold water from your faucet.

The purposes for which water is used are very numerous. First, we consume it as something necessary to our healthful existence. We use it for generating electricity for power and light, for bearing commerce, and for various other purposes. We not only use water to cleanse the body, but the Christian Church uses it, symbolically, to cleanse the soul. Water plays a prominent part in certain purification rites in other religions.

No greater calamity can befall a city or community than a water shortage or famine. We are giving much attention now to the preservation, or reconstruction, of our drinking water supplies, in case of atomic attack. We are also devising ways and means of protecting the population against mass slaughter, through germ warfare upon our water supplies. There is pending in the pre-

sent Legislature a bill designed to correct stream pollution.

So much by way of introduction. When you drink a glass of water, do you think about the processes through which it has passed on its way from the source, out yonder somewhere, to your stomach? Have you ever visited your local water shed, or inspected the processes through which the water is purified in order that you may be protected against water-borne diseases. And have you ever considered the years of scientific training required of the waterworks operator, and the important responsibility you have placed upon him to make sure you are getting a safe water supply? Just what does happen between source and stomach?

The State Board of Health maintains a division called the Sanitary Engineering Division, which is vitally interested in your water supply, and through which services are performed about which you may know little or nothing.

For the answer to the question, "What happens to drinking water, from source to stomach?" let us consult one of those in the Division above referred to who is concerned with that form of public service which guarantees you a pure water supply and consequent protection against disease.

Two Primary Sources

There are two primary sources from which our public water supplies must

be derived. These are surface sources, such as lakes and streams, and underground sources that are brought to the surface through man-made wells or natural springs. Most public supplies are, because of the large volume required to supply communities, taken from rivers and creeks, which often are impounded to form large storage lakes—in fact, all of the *major* ones come from surface sources.

To the average individual, it may appear quite difficult to pump water from a river or creek and so treat it that it will be safe and palatable for use by human beings. Frankly, it is not a simple task; however, developments in the science of water treatment, brought about by extensive study and research on the part of sanitary engineers, scientists and the medical profession, have resulted in the perfection of processes, equipment, and knowledge of chemistry and bacteriology which make it possible to satisfactorily purify surface water for human consumption.

It is emphasized that a word of caution is proper at this point. Surface streams which are overly-polluted, by domestic sewage or industrial wastes, either cannot be satisfactorily treated or the cost of treatment is prohibitive. In view of this, it is highly desirable that every water consumer, and polluter alike, put his shoulder to the important and necessary problem of properly maintaining streams used as sources of water supply in North Carolina, in such condition as to permit their present and future use for this purpose.

In many instances, the authority for this article points out, surface streams constitute the only *adequate* sources of public water supplies. The supplies derived from underground sources are obtained either from springs or wells. Water from wells and springs ordinarily is clear and satisfactory, without treatment. Nevertheless, in some cases, underground water contains minerals dissolved from the water strata which impart either hardness, iron or other materials that make it undesirable for domestic use. In such cases, it must be

treated by certain processes well known to the waterworks profession.

Harmful Substances Removed

The fact that most public water supplies are obtained from surface sources makes it necessary that the water be treated for the removal of substances which cause turbidity, color, or undesirable odors and taste.

Treatment also must be provided to remove the harmful bacteria, thus providing for your use and well-being a clear, sparkling, safe water.

In the course of water purification, the treatment processes usually begin with the storage of water in lakes or reservoirs. Following storage, the water is pumped to modernly-designed and efficiently-operated plants where lime and alum are added and thoroughly mixed with the water, in specially designed mixing and coagulating basins. A *gelatinous floc* is formed in these chambers, which enmeshes the mud, color bodies and many of the bacteria in the water, which, when permitted to settle in the sedimentation basins, leaves the water clear. It is then passed through sand filters to remove any remaining floc and turbidity, following which chlorine is applied to kill all harmful bacteria which may have survived the previously mentioned treatment processes.

But, the foregoing does not tell the entire story of the preparation and care that goes into the work of providing a safe and palatable water supply. Even after clarification and disinfection, water, being a universal solvent, must be treated to prevent corrosion of the distribution system, which, if permitted, results in "red water" that will stain the laundry and the porcelain fixtures of the bathroom and kitchen and will produce unpleasant odors and taste.

The above information has been given in an effort to better acquaint the consuming public with the preciseness to which water works operators must adhere and to the innumerable scientific details which are involved in producing

a water supply that is both safe and suitable for your use.

The information presented in this discussion, which is designed to emphasize one of the many services Public Health renders, was obtained from Mr. Earle C. Hubbard, Principal Sanitary Engineer, in the Sanitary Engineering Division of the State Board of Health, whose duties involve supervising the design and operation of public water and sewerage systems, and advising municipal and institutional officials and their engineers regarding the type of facilities and water works materials needed to provide safe and adequate supplies.

Approved Plants Safe

In conclusion, Mr. Hubbard stated that water from *all* approved public supplies in North Carolina may be consumed with a feeling of perfect safety, because of the long hours and hard work of those public officials whose duty it is to see that water offered for public consumption is safe. So, turn on your spigot and have a drink to the health of those who look after your water supply and do not forget to let them know that their efforts are appreciated.

This article is designed to give information on what your State Board of

Health is doing to *protect* you and yours against those illnesses which are preventable and the conditions which bring them about. If you should ask your family physician to name the water-borne diseases to which you would be subject without a safe and pure water supply, his answer would include many which now occur only in rare instances, because of the fact that we *have made* such advances in the science of sanitation.

The responsibility involved in the protection of your drinking water is only *one of many* which fall upon the shoulders of the Sanitary Engineering Division. This Division not only supervises public water supplies as to their sanitation, but also is concerned with environmental sanitation, the inspection of public eating places, milk, bedding and shellfish. It also has sections which are concerned with insect and rodent control. Many of the services performed by this Division of the State Board of Health are so routine that they are taken for granted. While the personnel of this Division is non-medical, in the generally accepted term, they work *under* the direction of the medical mind, even as all other enlisted in the service of Public Health.

TODAY'S COMMUNITY CONCEPT OF SCHOOL HEALTH*

DAVID VAN DER SLICE, M.D.,** *Coordinator of Health Services*
Oakland Public Schools

Great strides have been made in school health in the relatively short period since 1894, when the first school health program in the United States was established in Boston. In those days public schools were "hotbeds" of contagion," and it was not uncommon for school doctors to find children with diphtheria, whooping cough or scarlet fever in the classroom. The position that health occupies in the schools today is the result of an evolutionary process which can be roughly divided into five stages:

Stage I was characterized by an effort to detect and exclude those pupils who, because of communicable disease, threatened the welfare of others.

In Stage II there was added the responsibility of finding pupils with phys-

*Reprinted with permission from California's Health.

**Prior to his appointment by the Oakland Public Schools in August, 1950, Doctor Van der Slice served for two and one-half years as School Health Consultant for the California State Department of Public Health. This article was prepared during that period.

cal defects, and of taking steps to secure corrections.

Stage III was marked by a growing consciousness that health activities were carried out not only for corrections but for educational values as well.

Stage IV was marked by an expansion of *Stage III*, and included such concepts as: (a) all teachers are health teachers, (b) personal health includes physical, mental and emotional health, (c) the health program concerns itself with community as well as personal health, (d) health education is a 24-hour-a-day program—365 days a year, and involves the cooperation of the home and community agencies as well as the schools.

Stage V, the present one, is marked by a growing realization on the part of schools, health departments, professional groups and community organizations of their interdependence in carrying out the school health program. They recognize that each has a contribution to make and that no one of them can do the job alone.

Each advanced stage has included the best of the practices and experiences gained from earlier stages.

School health programs have steadily increased in breadth of services and complexity of organization. Forty years ago all health responsibility in the school was assumed by the doctor or the nurse, but this is not the case today. Today the job is shared with teachers, parents, dentists and dental hygienists, psychologists, psychiatric social workers and psychiatrists, health educators, counselors, students and others. This has required the setting up of machinery within the school for coordinating efforts of various professional workers and groups involved in the school health program. This has usually taken the form of a school health committee, a health coordinator, or both.

The modern school health program, to be most effective, must also be in proper relationship to other community programs of public health and child welfare. The idea that the school health program should be an isolated endeavor, operating apart from the rest of the community is being strongly challenged.

There is a growing acceptance of the fact that, in general, the school child's health reflects the foundation of his health laid during the preschool years, the health of his family and the adequacy of health facilities in the community in which he lives.

Parents have the primary responsibility for the health of their children. How well the family meets its responsibility in relation to providing food, rest, recreation, and medical and dental services, plus a healthful environment, is a highly important factor in relation to the child's health status. The job of the school health worker is to help motivate the parent to carry out responsibilities of the home and to stimulate citizens to provide necessary community facilities.

Today's community concept recognizes the advantages of integrating school health services with community health services, of promoting the health of parents, especially mothers during the prenatal period, and of providing continued health supervision during infancy, childhood and adulthood.

Not only do community health program activities affect the school child, but the family health status is frequently influenced through the school health program. For example, a nurse-parent conference or a medical examination at school may reveal a family health problem of greater significance and urgency than the child's health problem alone. Clearly, solution of a family health problem also benefits the child.

On every hand there is evidence of the ever-increasing interest and activity in school health work, not only by schools and health departments, but also by parent groups, medical and dental societies and other community agencies.

Two years ago the National Congress of Parents and Teachers asked the House of Delegates of the American Medical Association to request state medical societies to appoint committees or arrange for representation in conferences in the several states between medical societies, dental societies, health departments, educational agencies and

the National Congress of Parents and Teachers, looking toward the improvement of health services and health education for school children. The American Medical Association demonstrated its interest by calling two conferences, one in 1947 and the second in 1949, to define the role of the practicing physician in the school health program. From these conferences came recommendations that every local medical society should appoint a school health committee to study ways in which the physician's time may be used more effectively in the schools. Several local medical societies in California have already appointed school health committees which are cooperating with the schools in the development of the school health program.

Another promising development in recent years has been the increase in cooperation between schools and health departments in relation to the school health program. Most states now have formal plans for cooperation between state health departments and state departments of education with respect to school health programs. In California the closely related work of the State Departments of Education and Public Health in their responsibilities for the health of the school-age child is coordinated through the California State Joint Committee on School Health.

On the local level, an increasing number of county and city joint school health councils are being formed in California. Some have been initiated by the schools, others by the local health department. While council representation varies, it usually includes school administrators and teachers, members of the school health staff, health department representatives, parents, representatives of medical and dental societies, voluntary health agencies and other community organizations with a particular interest in child health.

The school health council facilitates joint program planning and the formulation of policies to guide the school health program. Fullest use of community resources is possible only when there is joint planning and active par-

ticipation of many different community groups.

Joint planning, with a sharing of responsibilities for different aspects of the program, has become a more and more common practice, particularly in rural areas where neither schools nor health departments have sufficient staff or resources to carry out an adequate program alone. A division of responsibilities and a sharing of personnel between schools and health departments makes possible the fullest utilization of existing facilities and permits the best use of professional skill and time. Almost universally, both schools and health departments are under-staffed and cannot afford to use the time of their personnel for any but the most essential and most productive activities. They cannot afford the luxury of duplicating services.

However, there are many communities in which this fine working relationship and this spirit of cooperation, which is so conducive to developing the best type of school health program, do not prevail. Although school health policies of a general nature have been formulated and approved by many national health and education organizations for at least 10 years, and are now well established, they affect school health practices in all too few local areas. Joint planning of school health programs would give an opportunity to review and discuss these policies in terms of how well they are fitted to local situations and to apply those which are workable.

Joint planning opens the way to a critical analysis of the total school health program with a view of determining what the needs are and then deciding how best they can be met regardless of what the traditional pattern has been. Some of the patterns in use today were established at the turn of the century and do not take into consideration the newer knowledge concerning the growth and development and the behavior of children, nor do they recognize improved school health methods and practices, which have demonstrated their worth.

There have been many recent ad-

vances in school health, such as: (1) the increased participation of the classroom teacher, (2) improved school health records (which more fully utilize the contribution of the teacher, nurse and physician), (3) improved screening devices to select pupils with probable vision defects and hearing losses, (4) greater participation by practicing physicians, (5) fewer but more thorough medical examinations giving priority to referred cases and new entrants, (6) the establishment of otological, cardiac and other diagnostic facilities which provide a more accurate diagnosis of pupil health problems, and (7) establishment of more adequate special edu-

cation facilities for children with handicapping defects.

Despite these examples of progress, many of the answers pertaining to the school health program are still unknown. There is a great need for experimentation. For example, there are great gaps in our knowledge concerning a proper secondary school health program. There is a need for trying new methods in an attempt to find out what works and what doesn't work under today's conditions. Continual program evaluation is needed in order for us to modify our activities and to make them more successful, retaining things that prove to be effective and dropping those which prove ineffective.

"THESE LITTLE ONES"

By WILLIAM H. RICHARDSON

Raleigh, North Carolina

The challenge given by the Master, "Isasmuch as ye have done it unto one of the least of these, my brethren, ye have done it unto me," has come down through two thousand years of history as an inspiration to those who would help the weak, especially, little children.

North Carolina's Public Health Program has been characterized by many helpful and worthwhile undertakings; but none of these, perhaps, has been more synonymous with the spirit of the Great Physician than the program designed to find, treat and rehabilitate children who, otherwise, might constitute a burden on society and go through life with a feeling of futility and a sense of their deformity.

The Crippled Children's Section of the State Board of Health is a monument to the untiring efforts of the late Dr. George M. Cooper, under whose direction this program was organized, in April 1, 1936, following the availability of Federal Social Security funds. Dr. Cooper, in his administration of the program, spent many sleepless hours, taxing his wits as to how the work might be continued. There were times

when he was almost, but not quite, discouraged. Even though it was necessary, often, to scrape the bottom of the barrel for money with which to carry on the program, Dr. Cooper usually found a way.

Let us consider, now, the way in which this program for these little ones is conducted. First, the child in need of treatment is located, usually by the Local Public Health nurse, or the family physician.

Conditions For Acceptance

The list of conditions which are accepted by the Crippled Children's Section of the State Board of Health may be outlined as follows: Congenital abnormalities, including hare lip, cleft palate, dislocation of hip, club feet, missing or extra bones. Birth injuries, also, are included, as well as tuberculosis of the joint, rickets, poliomyelitis, arthritis, osteomyelitis — which means infection of the bone —, curvature of the spine and burns.

If the child is found to be in need of hospitalization, after passing through one of the clinics, and if the parents say

they are unable to pay for the services needed, application is made to the local welfare board, which investigates the case in question. If the child's parents are found to be actually unable to pay, the case is certified and the child is placed in a hospital. If the parents are able to pay all or part of the expenses incurred, an effort is made to work out a satisfactory plan for treatment.

It might be well, just here, to consider the number of clinics conducted by local health departments, in cooperation with the State Board of Health and the Department of Vocational Rehabilitation. There are, at the present time, twenty-eight clinics, so well distributed that each child is within sixty miles of one of these. Taking part in the program, besides the local Public Health staffs, are thirty-one physicians. These include orthopedic surgeons, plastic surgeons and pediatricians. A report recently prepared by the Crippled Children's Unit shows that 11,998 examinations were done in 1949. There were, at the last count, twenty thousand children on the State register.

In requesting a State appropriation of one hundred thousand dollars a year, it was pointed out to the legislative appropriations committee that there are no existing State funds to finance surgical care of indigent children, with cleft palates, congenital defects, deformities from burns, and orthopedic conditions in hospitals other than the State Orthopedic Hospital. This hospital, located at Gastonia, does not have facilities for all these conditions and does not have the capacity for all of the indigent children needing care for problems which it is equipped to handle. There have been over three thousand, five hundred cases of polio in our State during the past four years. This, of course, has increased the necessity for orthopedic treatment.

Funds Once Exhausted

Funds from all sources were exhausted in 1949 and the work was stopped during the last quarter, except for emergencies.

The State Board of Health asked a one hundred thousand dollar annual

appropriation by the State in matching Federal funds for the next biennium. It is pointed out that this may mean an additional three hundred thousand dollars, annually, from Federal funds. Hence, this would be a sound investment, aside from the humanitarian aspects of the program. No State matching funds, conceivably, may mean no State Board of Health Program for Crippled Children.

Now that we have considered the mechanics of the program and have pointed out the desirability for adequate funds, let us consider some of the actual work which is done for these little ones, to set their feet in paths of usefulness and to hold before them, as they grow up, incentive enjoyed by their physically fit companions and school mates.

Authorization for hospitalization entitles the child not only to treatment, including both orthopedics and plastic surgery, but to braces, crutches, casts, orthopedic shoes, and other corrective devices. Plastic surgery corrects deformities from burns, harelips and the like. When the child leaves the hospital, it is subject to a follow-up program, during which systematic visits are made to the home, to see that the orthopedic recommendations are being carried out.

From Birth to 21

Most of the clinics are held in local health departments and all persons from birth to twenty-one years of age are eligible. Incidentally, it may be pointed out that 1,253 children who needed treatment in 1949 did not receive it, because of inadequate funds.

Of the polio victims, many still are in need of surgery. There is more human interest, both concealed and visible, in the rehabilitation of children than in almost any other humanitarian problem confronting the American people. When a child is born into this world, it comes not of its own accord, but "of the will of the flesh." It must accept conditions under which it is born, without recourse, and with no remedial measures at its command. Such children often are doomed to lives of hopelessness and their spirits compelled to live in bodies that are distorted

and deformed, which could be made normal, in a vast majority of instances, through modern orthopedic and plastic surgery.

The matter of Crippled Children constitutes not only a Public Health problem, but a stern public responsibility. We spend many thousands of dollars every year on methods designed to improve our crops and our farm animals. All this is necessary, of course, but of how much more value is a baby boy or girl than a baby cow or pig! Within the memory of those now living in the present generation, bovine tuberculosis has been conquered in cows; through vaccination, hog cholera has been attacked, with success. As a result, we have better cows, which mean more money for their owners; we have better hogs, which means more money for meat; we have better peanuts to feed the hogs, because the Government guarantees the price of peanuts.

Science Works Wonders

We now see fewer deformed children, than in the past, it seems, but that is due to advances in plastic and orthopedic surgery; to Federal funds and, in some instances, to contributions from private philanthropic agencies, such as the National Foundation for Infantile Paralysis, and the North Carolina League for Crippled Children.

If you live in a county where an orthopedic clinic is held, it would pay you to visit the clinic and see just what is being done for the unfortunate children of the State.

The program for crippled children has been underway now long enough for some definite results to be evident. Many children who, but for this treatment, would never have been able to use their hands and feet, have been trained to become men and women with useful trades, following their physical rehabilitation. Some are shoe makers,

some are operators of various machines, while others have learned to be radio repairmen and even watch repairmen.

Pictures have been taken of children when treatment began, when their deformities were very pronounced. Later, pictures of the same children reveal that orthopedic and plastic surgery *could* and *did* restore these children almost to a normal appearance.

If one should think of a crippled children's clinic as a scene of gloom and despair, this would be an entirely erroneous conception. When those in need of orthopedic and plastic repair work are taken to a clinic, every effort is made on the part of those in charge to dispel any fear or misgivings on the part of the child. If they are hospitalized, the surroundings during treatment are made as bright and cheerful as those in any home, insofar as is humanly possible.

Plenty of Incentive

It is no wonder that the State Board of Health is making every effort to secure a yearly investment by the State of one hundred thousand dollars, in order to meet the requirement that Federal funds be matched. It is not always easy to secure appropriations, with so many demands being made on the public treasury, but experience invariably has shown that money invested in building up wrecked lives has paid good dividends. Once the crippled children's work is given adequate funds and the results demonstrated, there is little likelihood that these will be denied in the future. Already, a remarkable record has been made by the Crippled Children's unit and those agencies which cooperate with it. Progress has been difficult, at times, and the way ahead has been uncertain, but surely success must crown the efforts of those who are trying so earnestly to re-build the lives of these little ones.

NOTES & COMMENT

BY THE EDITOR

DR. ELLIOT—On February 1st Dr. A. H. Elliot joins the staff of the North Carolina State Board of Health as the Director of the Division of Personal Health. Since 1931 Dr. Elliot has been Health Officer for the Consolidated Board of Health for the City of Wilmington and New Hanover County. He is known throughout the State as a good health officer. His program in New Hanover County was well balanced and included most of the activities which are generally recognized as good public health procedures. Practically all of the activities considered to be a part of the responsibilities of the Division of Personal Health are component parts of Dr. Elliot's program as a County Health Officer. He will, therefore, be familiar with the broad phases of the work which he will confront in his new capacity. In succeeding the late Dr. George M. Cooper as the Director of the Division of Personal Health, has a difficult assignment. However, those of us who know Dr. Elliot have every confidence that he will do a creditable job.

* * * *

TUBERCULOSIS STATISTICS—We are including in this issue of the Bulletin the vital statistics of tuberculosis which ordinarily would have appeared in the November issue. We hope that our tardiness in publication of this information will not detract from the interest which this important information should command.

* * * *

REPORT ON STUDY OF REGIONAL BLOOD GROUP DISTRIBUTIONS

The blood type of 141,774 men and women who voluntarily contributed blood to the American Red Cross from January 1948 through March 1949 is the subject of a report in the Journal of the American Medical Association.

The information was gathered from 15 representative cities and their outlying areas. The regions included: Yakima, Wash.; Rochester, N. Y.; Detroit; Massachusetts (42.3 degrees lati-

tude north); Omaha; Columbus, O.; Washington; St. Louis, Stockton, Calif.; Wichita, Kan.; San Jose, Calif.; Springfield, Mo.; Charlotte, N. C.; Los Angeles and Atlanta.

The total percentage of persons falling into each blood type from all 15 regions was as follows: O blood group, 45.55 per cent; A, 40.77 per cent; B, 9.96 per cent; and AB, 3.72 per cent. The O type blood can be used in all transfusions regardless of blood type of the recipient.

"In the event of an emergency requiring large quantities of blood," the report said in part, "the southern areas now appear to be comparatively favorable sources of O and the northern areas of B."

The results showed, to some extent, that for each degree of latitude proceeding from north to south the O group percentage increased, on the average, .32 per cent. From north to south the B group percentage decreased .17 per degree of latitude. No east-west trends were discovered.

The report brought out that from region to region the greater the O, A or B percentage, the smaller on the average was the percentage for the remaining groups within the trio, but AB group "tended to be stable."

In conclusion the report said that "population changes could be responsible for marked changes (in regional location of blood types) within the span of a very few years."

Associates of the American Red Cross who made the study were: George W. Hervey, Sc.D.; Dr. Louis K. Diamond and Virginia Watson, M.S., of Washington, D. C.

* * * *

AMERICAN HEARING SOCIETY

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Washington 5, D. C.

Kenfield Memorial Scholarship

In 1937 a sum of money was subscribed in memory of Miss Coralie N.

Kenfield of San Francisco, California, a teacher well known throughout the United States for her high ideals and advanced methods in teaching lipreading. This money, placed in the Kenfield Memorial Fund, is administered by the American Hearing Society and provides an annual scholarship. The amount of the Kenfield Memorial Scholarship for 1951 is one hundred dollars (\$100.00).

Applications for the scholarship will be considered from any resident of the United States who desires to teach lipreading (speechreading) with or without other types of hearing and speech therapy, and who can meet the following requirements:

A. Personal

Well adjusted individual with a pleasing personality, legible lips, a good speech pattern and no unpleasant mannerisms.

B. Education

College graduate with a major in education, psychology, and/or speech. If the applicant is hard of hearing, 30 clock hours of private instruction under an approved teacher of lipreading or 60 clock hours of instruction in public school classes under an approved teacher of lipreading are required.

The winner of the scholarship may take the Teacher Training Course from any normal training teacher or school or university in the United States offering a course acceptable to the Teachers' Committee of the American Hearing Society. The scholarship must be used within one year from the date the award is made.

Applicants must be prospective teachers of lipreading to the hard of hearing. Those already teaching lipreading cannot be considered.

Applications must be filed between March 1 and May 1, 1951 with:

Miss Rose V. Feilbach
Chairman, Teachers' Committee
1157 North Columbus Street
Arlington, Virginia

PLANS ANNOUNCED FOR RAISING FUNDS FOR MEDICAL SCHOOLS

Announcement was made of the formation of the American Medical Education Foundation, a not-for-profit corporation under Illinois laws, to raise funds from the medical profession to aid medical schools.

The fund, initiated by a contribution of a half-million dollars voted by the Board of Trustees of the American Medical Association in December, has been widely acclaimed as one of the most constructive programs ever undertaken by the A.M.A.

"The medical schools of the United States stand in need of additional financial support if they are to continue to provide the American people with physicians second to none in the quality of their education and training," said Dr. Elmer L. Henderson of Louisville, president of the A.M.A.

"Since the tremendous advances in the health of the American people in the last 50 years have been due in large measure to the great improvements in medical education during the same period, it is clear that insuring adequate financial support of our medical schools is vital to the present and future health of the nation."

In announcing the formation of the foundation, the Journal of the A.M.A. urged the doctors of the nation to contribute promptly and generously.

"It is planned that the foundation will coordinate its activities closely with other major efforts to raise funds for medical education from voluntary sources which it is hoped will be announced shortly," said the Journal.

"Because of rising costs, inflation, fewer large individual benefactions and reduced income from endowments, the medical schools need, without further delay, assistance of the type this fund can give.

"It is the desire of the foundation that the first annual disbursement of funds to the medical schools be made this spring. It is clear that if the foundation's contribution is to be an effective one, a substantial fund must be

raised by the medical profession within the next few months."

The Journal further pointed out that almost every physician now practicing received his medical education for less than what it cost his medical school. It added that many physicians have discharged this debt to society in full or in part by public and charitable activities and by donations to the schools with which they have been associated, but continued:

"The medical profession has traditionally accepted a large measure of responsibility for the training of the continuing flow of young physicians, on which it must depend for recruits and replacements in its efforts to serve humanity.

"It is to be expected, therefore, that all physicians regardless of the other contributions they have made to society, will want to share in the responsibility of making the foundation a success.

"The American Medical Association has indicated its belief that the possibilities of securing adequate support for medical education from voluntary sources are far from exhausted."

* * * *

REPORT AIR TRANSPORTATION OF MOST PATIENTS POSSIBLE

A study of the effects of air travel on 14,000 patients moved by the Military Air Transport Service between January and October 1949 shows that almost all patients suitable for transportation by other methods can be transported successfully by air.

Colonel Benjamin A. Strickland, Jr., of the U. S. Air Force Medical Corps, and Dr. James A. Rafferty, Randolph Field, Texas, said in the Journal of the American Medical Association that air transportation of patients proved "so successful" that it has been adopted as the "sole method" of moving patients for the armed forces.

This report is valuable to civilians as well as military personnel.

"Today," the doctors explained, "much of the available expert specialized medical care is concentrated in medical centers. In many instances patients re-

quiring (specialized) care must be transported to such a center.

"In general," they continued, "the routes, altitudes, weather conditions and types of aircraft utilized were identical with conditions of commercial airline operations."

A total of 16,020 case reports were made on the 14,000 patients studied. It was necessary to make more than one report on some patients if the flight was a particularly long one or if the nursing personnel changed during the course of the flight. One third of the number were litter or stretcher cases.

Only seven percent (1,135) of the case reports recorded symptoms of any kind during flight. Most of the symptoms—due to motion, effects of altitude or the disease itself—occurred at cruising altitude but they were of a "minor nature." No ill aftereffects were reported.

Ninety-seven percent of the time simple treatment relieved the symptoms. Most frequently the patient was merely asked to lie down. Only 1.1 percent received medication and that consisted of such simple remedies as aspirin, motion sickness preventives and similar medications.

According to the report, extremely few patients were rejected for air evacuation. For example, among a random sample of 2,796 patients, only five were considered unsuitable for movement by air. The doctors added, however:

"In the selection of a patient for possible transportation by air, certain important factors must be considered. The effects of air travel on certain diseases and injuries must be viewed critically and each case considered individually. The effects of ascent to altitude, both a reduction in barometric pressure and the corresponding decrease in partial pressure of oxygen in the inspired air, may have profound effect on certain pathological conditions."

* * * *

A.M.A. SPONSORS TELEVISION DRAMA OF FAMILY DOCTOR

A thirty-minute dramatized television show about a typical family doctor will be telecast on WABC-TV, New York,

at 8:30 (E.S.T.) Monday evening, January 22, under the sponsorship of the American Medical Association, Dr. W. W. Bauer, director of the A.M.A. Bureau of Health Education, announced.

Walter Hampden will star as "Doctor Webb of Horseshoe Bend." The story takes Dr. Webb, a fictitious but typical family doctor, and the young assistant who will take over his practice, through a typical and eventful doctor's day.

Film kinescopes will be made of the program for subsequent use on other television stations. These kinescopes, Dr. Bauer said, will be available to local medical societies on application to the Bureau of Health Education about seven days after the New York telecast.

"Dr. Webb of Horseshoe Bend," a Marshall-Hester Production, New York, is directed by Martin Magner.

* * * *

URGES TRADING AREA PRINCIPLE IN SELECTING WAR SERVICE DOCTORS

The trading area principle should be used to determine in what communities physicians can be spared for military service during a major war, says the Journal of the American Medical Association.

The Journal cites a bulletin of the Bureau of Medical Economic Research of the A.M.A. presenting for the first time the size and population of the 757 medical service areas in the United States.

"Few of these boundaries coincide with the boundaries of states, counties and other political areas," the publication says. "From the findings of the bureau one can determine the actual medical service areas served by physicians. Further study will reveal what medical coverage actually is available for the population of each area."

* * * *

URGE MORE EXPENDITURES FOR PREVENTION OF BLINDNESS

In 1949 more than \$125,000,000 in tax and private funds was spent for care and services to the blind. Money available for research in the blinding eye diseases for the same year was less than \$1,000,000. Less than \$500,000 was spent for organized prevention services.

This striking contrast between the funds used for aid to the blind and those used for the purpose of prevention and research is brought out by Drs. Walter B. Lancaster, Boston, and Franklin M. Foote, New York, in the Journal of the American Medical Association.

Dr. Lancaster is an ophthalmologist, a specialist in diseases of the eye. Dr. Foote is associated with the National Society for Prevention of Blindness, New York.

"We should not reduce activities for those already blind," the doctors pointed out, "but by increasing what we are doing now to enable persons to keep their sight we can gradually reduce the number of unnecessarily blind."

The report estimated that about 22,000 people each year have their vision reduced to one tenth of normal vision.

Blindness is a major public health problem, the doctors said, not merely because of its incidence but also because the blind man or woman lives on for many years often partly or wholly dependent on others.

Based on information covering 3,905 children in schools and classes for the blind and 46,537 adults receiving aid to the blind, it is estimated that blindness in all ages is due to infectious diseases in 22.5 per cent of the cases, to injury in 9.3 per cent, poisonings in 0.6 per cent, tumors in 0.9 per cent, general diseases in 5.5 per cent, prenatal origin in 12.2 per cent and causes unknown to science in 29.9 per cent. The remainder are of undetermined or unspecified origin.

Of the blindness resulting from injuries, about half are of occupational origin. The others are due to accidents at play or in the home.

From 1936 to 1948 a 25 per cent decrease in blindness among children in schools for the blind as a result of eye injuries was noted. This encouraging drop was attributed by the doctors as partly due to "wise legislation which has been adopted in 10 states to regulate the use of air rifles by children and in 29 states to control the sale of fireworks."

Deaths From Tuberculosis By County, Type, and Color:

North Carolina, 1949

COUNTY	PLACE OF DEATH						PLACE OF RESIDENCE					
	TOTAL		RESPIRATORY		OTHER		TOTAL		RESPIRATORY		OTHER	
	White	Other	White	Other	White	Other	White	Other	White	Other	White	Other
Entire State	416	616	385	568	31	48	377	579	344	530	33	49
Alamance	3	2	3	1		1	3	6	3	3		3
Alexander	2		2				4	1	4	1		
Alleghany		1		1								
Anson		4		4			2	7	2	7		
Ashe	1		1				2		2			
Avery	1		1				2		2			
Beaufort	2	7	2	7			3	10	2	10	1	
Bertie	1	2	1	2			3	4	3	4		
Bladen	1				1		1	4		4	1	
Brunswick												
Buncombe	129	81	128	80	1	1	22	10	22	10		
Burke	13	1	11	1	2		6	6	6	6		
Cabarrus	1		1				4	2	4	2		
Caldwell	6		5		1		9	2	7	2	2	
Camden								1		1		
Carteret							2	2	2	2		
Caswell	1	1	1	1			2	2	2	1		1
Catawba	1		1				4	1	4	1		
Chatham	1	2	1	1		1	1	6	1	4		2
Cherokee	2		2				3	2	3	2		
Chowan		2		2			1	3	1	3		
Clay												
Cleveland							2	2	2	2		
Columbus	3	3	1	3	2		4	4	2	4	2	
Craven		10		10			2	17	1	17	1	
Cumberland	6	9	5	8	1	1	11	11	10	10	1	1
Currituck	2		1		1		2	1	1	1	1	
Dare							1		1			
Davidson	2		2				3	4	3	4		
Davie												
Duplin		5		5			1	7	1	6		1
Durham	13	28	12	22	1	6	14	22	14	22		
Edgecombe	2	10	2	9		1	5	15	5	14		1
Forsyth	14	26	10	23	4	3	13	28	12	25	1	3
Franklin		1		1			1	2	1	2		
Gaston	2		1		1		6	5	5	5	1	
Gates	1	1	1	1			2	1	1	1	1	
Graham							1		1			
Granville		5		5			1	7	1	6		1
Greene	2	3	2	3			2	6	2	6		
Guilford	16	24	15	22	1	2	14	22	12	21	2	1
Halifax	4	11	4	11			5	15	5	15		
Harnett	4	6	4	6			5	9	5	9		
Haywood	2		2				5		4		1	
Henderson	1		1				2	2	2	2		
Hertford		4		2		2		6		4		2
Hoke	19	94	17	89	2	5		3		3		
Hyde		1		1			1	1	1	1		
Iredell	2	3	2	3			3	3	3	3		
Jackson	3	1	3	1			5	2	5	2		
Johnston	5	5	5	5			5	11	5	10		1
Jones		1		1			2	2	1	2	1	

Deaths From Tuberculosis By County, Type, and Color: North Carolina, 1949

COUNTY	PLACE OF DEATH						PLACE OF RESIDENCE					
	TOTAL		RESPIRATORY		OTHER		TOTAL		RESPIRATORY		OTHER	
	White	Other	White	Other	White	Other	White	Other	White	Other	White	Other
Lee	1	2	1	2	---	---	1	3	1	2	---	1
Lenoir	12	6	9	5	3	1	9	11	7	9	2	2
Lincoln	---	---	---	---	---	---	---	1	---	1	---	---
McDowell	2	2	2	2	---	---	6	2	5	2	1	---
Macon	2	---	2	---	---	---	3	---	3	---	---	---
Madison	---	---	---	---	---	---	6	---	6	---	---	---
Martin	1	5	1	5	---	---	3	9	3	9	---	---
Mecklenburg	23	20	19	19	4	1	18	22	15	21	3	1
Mitchell	1	---	1	---	---	---	3	---	3	---	---	---
Montgomery	2	1	2	1	---	---	3	2	2	2	1	---
Moore	---	1	---	1	---	---	---	5	---	5	---	---
Nash	4	13	3	10	1	3	6	23	5	16	1	7
New Hanover	3	4	3	3	---	1	8	14	7	12	1	2
Northampton	5	3	5	3	---	---	7	6	7	6	---	---
Onslow	2	3	1	2	1	1	4	8	3	7	1	1
Orange	1	2	1	1	---	1	2	6	2	4	---	2
Pamlico	---	3	---	3	---	---	1	3	1	3	---	---
Pasquotank	2	1	2	1	---	---	3	6	3	5	---	1
Pender	---	1	---	1	---	---	---	3	---	3	---	---
Perquimans	1	---	1	---	---	---	2	1	2	1	---	---
Person	---	---	---	---	---	---	2	8	1	8	1	---
Pitt	8	9	7	8	1	1	14	18	13	17	1	1
Polk	---	---	---	---	---	---	1	---	1	---	---	---
Randolph	---	1	---	1	---	---	2	2	2	2	---	---
Richmond	3	4	3	4	---	---	4	8	4	8	---	---
Robeson	3	7	3	7	---	---	4	16	4	15	---	1
Rockingham	2	4	1	4	1	---	7	5	6	5	1	---
Rowan	1	1	1	1	---	---	2	2	1	2	1	---
Rutherford	---	6	---	4	---	2	1	6	1	4	---	2
Sampson	1	1	1	1	---	---	2	7	2	7	---	---
Scotland	2	2	2	2	---	---	5	8	5	8	---	---
Stanly	1	1	1	1	---	---	2	2	2	1	---	1
Stokes	---	---	---	---	---	---	---	---	---	---	---	---
Surry	8	1	8	1	---	---	9	1	9	1	---	---
Swain	1	1	1	1	---	---	2	---	2	---	---	---
Transylvania	---	---	---	---	---	---	---	---	---	---	---	---
Tyrrell	---	---	---	---	---	---	1	---	1	---	---	---
Union	---	4	---	4	---	---	2	5	2	5	---	---
Vance	3	6	3	6	---	---	3	7	3	7	---	---
Wake	21	23	20	19	1	4	9	30	8	27	1	3
Warren	---	6	---	6	---	---	---	8	---	7	---	1
Washington	1	2	1	2	---	---	2	4	2	4	---	---
Watauga	2	---	2	---	---	---	1	---	1	---	---	---
Wayne	5	69	5	67	2	---	7	13	7	12	---	1
Wilkes	3	3	3	2	---	1	6	3	5	2	1	1
Wilson	19	44	18	37	1	7	9	24	8	20	1	4
Yadkin	1	---	1	---	---	---	1	---	1	---	---	---
Yancey	1	---	1	---	---	---	2	---	2	---	---	---

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The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

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CONTENTS

	Page
The Right to Health as a Basis for Human Rights	3
Life and Death in 1950	8
Notes and Comment	11

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THE RIGHT TO HEALTH AS A BASIS FOR HUMAN RIGHTS

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Most of us accept without question the principle that the right to health is one of the fundamental human rights, as is enunciated in the Universal Declaration of Human Rights adopted by the United Nations, but we are not always clear as to all the factors involved in the implementation of this right. The present discussion will undertake to analyze these factors and to look briefly at our progress and needs with respect to them.

The "Right to Health" is set forth in Article 25 of the Universal Declaration of Human rights, which reads as follows:

"Everyone has the right to standard of living adequate for the health and well being of himself and of his family, including food, clothing, housing, and medical care, and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age, or other lack of livelihood in circumstances beyond his control."

Of primary significance, of course, in the interpretation of this statement is the definition of the word **health**. The World Health Organization gives us in its constitution what is probably the most comprehensive definition. It states: "Health is defined as a state of complete physical, mental, and social well-being, not merely the absence of disease or infirmity."

If we paraphrase the declaration, then, using this definition we have:

"Everyone has the right to standard of living adequate for a state of complete physical, mental, and social well-being for himself and his family, including food, clothing, housing, medical care, and necessary social services."

Stating the Declaration this way serves to emphasize a point which I feel should be basic to our thinking, and that is that health in the broad sense is a function of all the factors which enter into what we usually refer to as standard of living, and not simply of health and medical services. These health and medical services are of vital importance to the attainment and preservation of health, but they are only one of the necessary factors. In this country we have been devoting a great deal of attention to public health services, hospitals, and medical care, and we are sometimes prone to overlook the fact that even though these things were entirely adequate, they would not assure the individual of a "state of complete physical, mental, and social well-being" in the absence of economic security, decent housing, proper diet, and education in health matters.

I want to devote the major part of this discussion to an analysis of health and medical services, but I would like first to emphasize the importance of

these other factors so that as we think and talk about doctors, nurses, health departments and hospitals, we may place them in their proper perspective in relation to the total picture of factors essential to health.

A few examples will serve to illustrate the point. Forty years ago hookworm was a major cause of ill health in North Carolina. Today, although it still exists, it is a very minor problem. This reduction has been due in no part to medical treatment of individual cases, and to only a limited extent to the health and sanitation program. More important factors have been the decline in the number of children who go barefooted and the rising standard of living with its effect on practices of excreta disposal at the individual home.

At the time of the first world war and through the early years of the great depression pellagra was widespread in North Carolina. Today it is a minor problem. The most significant contributions to this decline have been made by factors other than medical and health services, among them improved understanding of nutritional needs, rising standard of living, and changes in our agricultural economy resulting in more food and feed crops, livestock, poultry, and dairying.

Malaria in the South has been reduced to a negligible problem as much by the urban trend and screens as by drainage, spraying and the like.

In more underprivileged areas of the world the importance to total health of social and economic factors is even more striking. World Health Organization has set out to attack several of the specific diseases affecting wide areas of the world—malaria, typhus, cholera, and certain parasitic diseases. Although some of these efforts are meeting with gratifying success—as in the case of malaria—already it is becoming obvious that these eradication efforts will be of only limited and temporary benefit unless the general standard of living can be raised, unless soil erosion can be checked, water resources developed, agriculture modernized, and standards of housing and basic sanitation improved.

These examples will suffice to illu-

strate the importance to health of these economic and social factors. Now to consider the right to health with specific reference to the area of health and medical services. Within this area what are the elements essential to the implementation of the right to health? I would suggest five:

1. The protection afforded by an organized preventive and public health program, bringing to the individual the benefits of scientific developments which can be most effectively applied for the protection and promotion of health through a community approach.

2. An adequate number of hospital beds, health centers and laboratories, meeting acceptable standards, and conveniently accessible to all the people.

3. An adequate number of the scientific personnel—physicians, dentists, nurses, public health workers, and auxiliary personnel—required to render needed care.

4. A comprehensive program of health information and education by all groups and agencies concerned with health care, to the end that the individual may have an understanding of the factors concerned with his personal health, of how he can make the most intelligent and effective use of the facilities available, and of his part in supporting these facilities.

5. A method of financing services and facilities which makes them available to the individual on a basis which he can afford, and which preserves his dignity and self-respect.

Now let us look briefly at each of these elements and see how adequately they are met in the United States and in North Carolina, and what are some of the special needs.

First, preventive and public health programs. While such programs are a responsibility shared by the full-time local health department with other groups, it is generally recognized that the service of such a department is a basic necessity, and the extent and adequacy of full-time local coverage gives us a rough measure of achievement in this regard. Of 3100 countries in the United States only 1900 have full-time local health departments at the present

time. Of course many of the 1200 counties without such service are small, but many of them are not, and of the 1900 counties with the coverage, relatively few meet minimum standards of adequacy as to numbers and qualifications of personnel. Moreover nearly a third at last reports had a vacancy in the position for health officer.

In North Carolina we are somewhat better off than the country as a whole. We have health departments covering the entire 100 counties. However, our ratio of public health nurses to population is only a little more than half of approved standards, 1 to 9,000 as against a standard of 1 to 5,000, and there are nine health officer vacancies, affecting 13 counties.

Next let us look at the physical facilities of health care: hospitals and health centers. The United States has around a million and a half hospital beds of all kinds. Approximately 44% of these are general beds, the balance being for mental, tuberculosis and chronic patients. Nearly a third of these are unsatisfactory by the standards established by the Public Health Service under the Hospital Construction Act, so that it was estimated by the National Health Assembly in 1948 that a total of 900,000 new and replacement beds were needed. Some progress, of course, has been made under the Hospital Construction Act, but making up a deficit of this magnitude will be a matter of years, since both personnel and construction are involved.

In North Carolina we have a total of 27,400 beds of all types, of which 13,500, or about half are general beds. These general beds comprise 74% of those we need according to P.H.S. standards. We will, when present construction is completed, meet the required number of beds for tuberculosis, but we have only 54% of the needed beds for mental patients and only 3% of the needed beds for chronic patients. As to this deficit of mental beds the view has been expressed that the standard for mental patients is too high if adequate personnel and facilities are provided so that all patients are cured or improved who are susceptible of cure or improvement. In

other words, it will not take as many beds if our mental hospitals can provide real therapeutic services rather than the largely custodial care they have been providing. I am inclined to agree with this point of view, which would reduce our deficit of mental beds to around 28%.

With respect to health centers, the standards as to the number needed are not very satisfactory. Certainly, however, we can figure at least one per county. Both in the country as a whole and in North Carolina we have made but a beginning on these facilities. When projects already approved in North Carolina are completed we will have the health departments in 25 of our 100 counties housed in reasonably adequate health centers, the other 75 being housed in quarters inadequate in size or appointments, or in unsatisfactory locations.

The National Health Assembly made the point that effective and economical health service will require a great deal better integration than exists at present of the facilities within a given community and the facilities within a region. This is one of the more difficult problems we face but it is of vital importance that we begin giving it very serious attention because without proper integration we will not get the service to which we are entitled for the investment we are making.

The third element in health and medical services is personnel. In estimating personnel needs I have used 1960 as the date of reference since that is the date on which the National Health Assembly and several recent studies of nursing needs have based their estimate. The figures quoted represent the more conservative of the available estimates.

As to physicians, the present annual rate of graduation nationally is 1500 less than will be required to give us the number of physicians we will need by 1960. It is likely that the deficiency will not be quite so great as this figure would indicate, since there are several new medical schools in prospect—including our own at the University—but it promises to be of significant proportions nevertheless. Of perhaps greater significance than the deficit in numbers

is the problem of maldistribution. While the urban areas generally have an adequate number of physicians, many smaller communities and rural areas have none.

With respect to the dearth of physicians in these smaller communities it should be pointed out that this is often the fault of the communities themselves. They move heaven and earth to get a physician to locate there, and then go to a not-too-distant larger center for their medical care except when they need a doctor at night or in bad weather. And then they wonder why he doesn't stay.

There are several categories of physicians in which the shortage is acute:

Psychiatrists

Negro Physicians

Physicians in government services

Public health physicians

As to dentists most of us have enough personal difficulty getting dental appointments to realize that there is a serious shortage, although standards as to the number of dentists who will be needed once the great backlog of dental needs in the population has been disposed of are not as well established as is the case with physicians. The National Health Assembly estimated a shortage by 1960 of 8,000. The shortage of dentists is most acute in the same areas as physicians, rural communities, public health, government services, and as respect negro dentists. In both physicians and dentists North Carolina ranks in the lower group of states.

In the field of nursing personnel the shortage is serious at all levels from trained practical nurses to top flight educators and administrators. Best estimates place the shortage by 1960 at 100,000 to 125,000 unless the number of nurses graduated can be greatly stepped up. Coupled with shortage of numbers are grave deficiencies in educational program and facilities. A recently completed two-year survey of nursing problems in North Carolina highlights the inadequacies of many of our schools of nursing, and points out that it will be necessary to double the number of our nursing graduates in order to provide for our nursing needs by 1960.

The shortage of personnel in the various related and auxiliary fields is of somewhat the same magnitude as physicians, dentists and nurses. In considering our personnel needs it is necessary, of course, to distinguish between needs as determined by standards, and effective demand. The estimates I have given are based on standards, and whether or not the effective demand will be that great will depend on many factors, but perhaps largely on the prosperity level.

We have referred before to the shortage of public health personnel. Based on minimum standards of the number of personnel needed for full coverage of the United States with local health service we will need the following numbers, **in addition to people now employed:**

1,500 more physicians

19,000 more nurses

4,000 more sanitation workers

Smaller numbers of dentists, health educators, laboratory workers, etc.

The outlook as regards personnel is further clouded by the plight of our professional schools. Costs have advanced so drastically and income has lagged so seriously that many medical, dental, and nursing schools are in a critical situation, and their continued progress, and even existence, may depend on some form of Federal aid or support.

The fourth element in health care is health instruction and information. This does not lend itself to the kind of explicit definition and measurement we have used on facilities and personnel, but it is of such importance to the fulfillment of the "right to health" that it requires some emphasis. Health education—to use a rather inadequate term—is a responsibility of all the groups and agencies concerned in any way with health programs and health care: our schools and educational institutions, public health agencies, the various health professions, and voluntary health organizations. It needs to be directed toward the goal of giving the individual insight in at least three areas:

1. The personal practices which make for healthful living—all those factors in our habits and way of life which are

conductive to emotional and physical health.

2. The immunizations and health supervision each individual should have, the kinds of ill health which may threaten him, and symptoms which should warn him to seek medical attention.

3. The elements involved in the provision of complete health care to the community, how he can use these most effectively, and the cooperation he must give if they are to function economically, and to the greatest satisfaction of the individual and the community.

You can see that the provision of this kind of information and understanding is a major and continuing task in which many groups and agencies have a heavy responsibility. If it is not provided no degree of adequacy in available services will suffice to give us that "state of complete physical, mental and social well-being" which we call health.

The fifth and final element in the right to health is a method or combination of methods which makes it possible for each individual to secure adequate health and medical services at a cost which he can afford, and under a system which preserves his dignity and self-respect.

Let us consider briefly some of the facts of this problem of financing medical costs. There are two facts which immediately stand out:

1. The greatly increased expensiveness of medical and hospital care in recent years.

2. The irregular and unpredictable incidence of medical costs.

There is no question about the expensiveness of medical and hospital care today. The new techniques of examination and treatment and the new therapeutic agents, which have multiplied the effectiveness of medical diagnosis and treatment, cost a lot of money. These costs can be tempered in a measure by more economical administration, better coordination among the various individuals, groups, and facilities providing care, by expansion of group practice and by less demand on the part of patients for luxury care and facilities, but even with all possible

economy the costs of good care are still high.

The distribution of the medical care dollar among the various items of expenditure is interesting, and perhaps not quite what most of us would expect. Around 25 cents goes for physicians' services, 21 cents for hospitalization, 14 cents for dental care, 21 cents for drugs, and 19 cents for nursing and all other care.

The population can be divided into three groups so far as their ability to pay the costs of medical care is concerned:

1. The indigent and medically indigent who can pay for none or only a small part of their care.

2. The great middle income group who could pay their medical costs if they were spread out uniformly, but whose financial competence is jeopardized by prolonged and major illness.

3. The relatively small percent able to meet any eventuality.

\$2000 a year would appear to be the minimum income on which a family could be expected to pay for even normal routine medical costs without assistance. In 1946 twenty eight percent of individuals and families had an income of less than this figure. Government clearly has the major responsibility for financing medical care for this group through some plan which assures them of adequate care, and which does not pauperize them or offend their self respect. This is a responsibility which is being met very unevenly and inadequately in the country as a whole. And it is worth noting that the compulsory health insurance plans which have been proposed would not take care of this group.

It is around the needs of the second group, who can meet their medical costs if they can be spread out through some kind of prepayment or insurance plan, that the greater part of current discussion has centered. There is general agreement that the principle of contributory health insurance should be the basic plan of financing medical care for a large majority of the American people, but there is wide divergence as to whether this can be accomplished by

voluntary prepayment plans, or whether it will require a compulsory national plan.

The National Health Assembly of 1948 expressed the conclusion that "voluntary prepayment group health plans, embodying group practice and providing comprehensive service,—are the best available means at this time of bringing about improved distribution of medical care."

There are, of course serious problems which have to be solved if voluntary plans are to meet the country's needs. There is first of all the difficulty of enrolling and collecting from individuals who do not belong to a group which can be enrolled en masse, and for which payment can be made by payroll deduction. The most difficult group to reach, and one which particularly needs the protection is the rural group. It is vitally essential that some economical way be found of promoting and handling prepayment insurance among rural people.

Another problem is that of over-use and abuse which can impose so heavy a burden on the program that rates will have to be set too high for many of the people who need the protection most. This is a problem which involves understanding and acceptance of responsibility for avoiding unnecessary hospitalization and care by both patients and physicians.

We can summarize briefly, then, what we have been saying:

1. Health and medical services are only one factor entering into the implementation of the "right to health." Economic and social factors such as housing, good wages, steady employment, and recreation are likewise essential.

2. The essential health and medical services include an adequate public health program, adequate hospital and health center facilities, an adequate number of properly trained professional personnel, a comprehensive program of health education, and a satisfactory method of financing the costs of medical care.

3. There is a shortage of all categories of health personnel. This is especially marked with respect to nurses, to rural areas, and to negro physicians and dentists.

4. The problem of more adequate support for professional schools training health personnel is an urgent one, with Federal assistance probably the ultimate answer.

5. Contributory health insurance is generally agreed to be the basic method by which the majority of the American people may best finance the costs of medical care. Voluntary prepayment plans, Blue Cross and Blue Shield, offer the most efficient means of providing this insurance. Two problems of these plans challenge the best efforts of the health professions and the public: the prevention of over-use and abuse, and the development of effective and economical methods of enrolling our rural population.

6. Although we have made magnificent technical progress in health and medical care, there remain serious problems to be solved before we approach attainment of the objective set forth by the National Health Assembly that "adequate medical care for the prevention and relief of sickness, and the promotion of a high level of physical, mental, and social health should be available to all without regard to race, color, creed, residence, or economic status."

LIFE AND DEATH IN 1950

WILLIAM H. RICHARDSON
Raleigh, N. C.

How many of you, especially if you are among those in middle or late life, know **definitely** that your hearts are sound? How many of you are certain

that your blood pressure is not abnormally high; and how many **know** that you have **neither** cancer, **nor** any of its danger signals. You can receive none of

this information except from a qualified physician, and even then, only after a thorough physical examination.

There was a very definite motive behind the asking of the above questions. Out of a total of 31,257 deaths from all causes in North Carolina, last year, 16,625 were attributed to diseases of the heart, apoplexy, and cancer. This total is revealed in the provisional vital statistics report for 1950, compiled by the State Board of Health. The total number of deaths from the same causes in 1949 was only 15,525.

When more than one-half of all deaths occurring in the State, in a single year, result from just three diseases, we have much food for thought. There was a substantial increase in deaths from all **three** of these causes, namely, diseases of the heart, apoplexy and cancer, in 1950. As a matter of fact, for some years, there has been a very pronounced **upward** trend in these figures. However, there appears one oasis in the desert of degenerative diseases, among which the above are classed. The bright spot referred to is the sustained downward trend in deaths from nephritis. From this cause, there were 1,416 in 1950, compared with 2,141 in 1949. This comparison reflects a decrease of 725 deaths from nephritis, or Bright's disease, in a single period of twelve months. The decline has been evident now for several years, and it is sincerely hoped that it will continue. In comparison, 910 more people died of heart disease in North Carolina in 1950 than in 1949; 107 more died of apoplexy and 83 more of cancer.

Top Bracket Killers

If we add to these three causes of deaths in North Carolina last year, the totals of nephritis and all accidents, we have a total of 20,381. As has previously been stated, deaths from all causes, in 1950, numbered 31,257. Incidentally, this reflects a decrease in all deaths of 159. The decrease in the total number of births was much greater, being 2,781. That is to say, there were only 106,686 live babies born in North Carolina last year, as compared with 109,467 the previous year. During the period under comparison, death claimed 3,691 babies

under a year old. This was a substantial decrease under the 4,155 infant deaths in 1949. Last year, 2,688 babies in North Carolina were born dead. This figure was slightly under that of the preceding year.

Now that we have considered the top bracket killers in North Carolina, it might be well to acquaint you with some figures relative to those diseases which formerly took a heavy toll of life each year, but have been brought well under control. For many years, the sceptre was held by tuberculosis which remained the king of killers, for decade after decade. In years gone by, when one was told that he or she had tuberculosis, or consumption, funeral preparations were begun. In fact, the patients sometimes were not told until their condition became evident to themselves. Tuberculosis, at one time, was considered absolutely incurable, but now we know better. With the perfection of X-ray and its increasing use in the detection of tuberculosis, thousands of people are being cured every year, especially those in whom the disease is discovered in its early stages.

T.B. Campaign Progresses

For several years now, the State Board of Health has been engaged in an intensive campaign for the detection of tuberculosis. Up to now, about one and a quarter million chest pictures have been made. All-out surveys have been completed in many counties, and the work still goes on. The ultimate goal is to secure an X-ray chest picture of every person in North Carolina over fourteen years old. The death toll from this disease is continuing on the decrease in North Carolina. As an example of this, the total number of tuberculosis deaths in this State in 1950 was only 789, as compared with 973 in 1949. Numerically, this was a decrease of 193, an excellent percentage.

Before the discovery of means of immunization and the improvement of our sanitary facilities, typhoid fever claimed a tremendous toll in North Carolina each year. During 1950, there were only **three** such deaths among the more than four million people within the bound-

aries of our State. The previous year, the total was seven. Despite the sensational references to polio in certain quarters, there were only twenty-four deaths from this cause throughout the State last year. This was only one in excess of the twenty-three which occurred in 1949.

In connection with preventable deaths, it is well to point out one field in which no progress seems to have been made. We refer to accidental deaths. During 1950, automobile accidents accounted for the death of 1,089 persons in North Carolina, as compared with 954 in 1949. Many people think of motor vehicles as being responsible for most accidental deaths. This is not true. Out of a total of 2,340 deaths from all accidental causes in the State last year, 1,251 had no connection with motor vehicles, but occurred, for the most part, in our homes and were preventable. An entire broadcast recently was devoted to this subject, as some of you may recall.

The Meaning of Statistics

It has been stated that statistics, viewed as just so many figures, have little or no meaning. It is only when they are properly and helpfully interpreted that they become significant and helpful. Vital statistics are highly important, because they constitute the bookkeeping of life and death, and affect the entrance into and exit from this world of every human being. For a partial interpretation of the figures given you, let us go to the physician in charge of the Division which gathered these statistics. Reference here is to Dr. Charles P. Stevick, who has made these pertinent observations: "While communicable diseases have been pushed down, the coming of civil defense has given to this problem a new significance. War always is accompanied by an increase in certain communicable diseases."

It might be well to point out just here, however, that prior to the discovery of modern methods of immunization, it was often the case that more men in the armed services died of diseases which then were not preventable than from bullets. During the War Be-

tween the States, cholera, smallpox, and typhoid fever killed thousands of soldiers. The same was true in the War with Spain. But around the turn of the century, preventive medicine took on a new meaning. With the discovery and perfection of means of immunization, disease casualties in our armed forces have decreased each world war. However, the death rate among civilians from the destructive weapons of war has constantly been on the increase. It has been pointed out that, when and if the next war comes, there will not be a safe spot on the face of the earth.

Dr. Stevick went on to point out:

"Even with modern means of immunization, communicable diseases and epidemics present a war-time problem as evidenced by the present, or recent, typhus epidemic among the soldiers of northern Korea and Communist China. But, because of our advance in medical science, our servicemen in Korea, so far as we know, have been free from preventable sickness."

Dr. Stevick significantly pointed out that immunization of children **now** not only is necessary for their own protection, but is a part of the preparedness program for civil defense. We must not forget the communicable disease problem which, although it may be of small proportions at the moment, requires **maintenance control**. Any relaxation might well mean relapse into conditions which formerly existed.

Future Health Frontier

In conclusion, Dr. Stevick made this significant observation; that, with the elimination and control of preventable diseases of childhood, the degenerative diseases among those in middle and late life constitute the Public Health frontier of the future. Even now, special studies are being made of these diseases, with a view to their future control if, with all the facts in hand, this, perchance, may be brought about. Secrecy no longer is a factor in dealing with human sickness. It is necessary for the patient to know the nature of his or her illness, in order to bring about that cooperation with the physician which is so vitally necessary, if a cure is to be effected.

Medical science proceeds on the theory that "while there is life there is hope." In many instances, when the period of hopelessness arrives, the patient is too ill for it to make much difference, anyway. Unfortunately, however, some of the degenerative diseases have progressed so far when their symptoms become

plain to the patient that the result is fatal. It is, therefore, of the utmost importance that every person, especially those in middle and late life undergo thorough physical examinations at intervals suggested by their physician. This may mean the difference between life and death.

NOTES & COMMENT

By Editor

RADIO BROADCAST—Dr. Roy Norton, State Health Officer, has announced an expansion of the State Board of Health's broadcasting activities. For many years, a weekly program has been given over Station WPTF in Raleigh, known as "Your Health and You." This program from 9:15 to 9:30 each Saturday morning. The same program is now heard over Stations WBT in Charlotte and WWNC in Asheville. The Charlotte and Asheville programs are transcribed, while the Raleigh program is given by William H. Richardson, Public Relations official for the State Board of Health, as in the past.

In making the announcement of this expanded service, Dr. Norton said, "Station WPTF gives us its hearty cooperation in securing time on the Asheville and Charlotte stations. I wish to express my appreciation of this, as well as the continuing courtesies WPTF has shown the State Board of Health in furnishing free time for the past twenty years." Incidentally, this is the oldest continuing public service radio program in the State.

The broadcast over WBT in Charlotte is heard each Saturday at 5:35 p. m., while that over WWNC in Asheville is heard at 3:15 each Saturday Afternoon.

* * * *

MEMBERS OF LOCAL BOARDS OF HEALTH ATTEND SCHOOL—The School of Public Health at the University of North Carolina has been offering courses for the training of health officers, public health nurses, sanitarians and health educators. On the 28th of February and the 1st of March of this year a course was offered for members

of local boards of health. This institute was the result of the long felt need on the part of members of local boards of health for a better understanding of their place and responsibility in the public health program. Approximately 25 board members attended the conference. This was in excess of the number expected.

The program for February 28th is as follows:

The Responsibility of Government for Health, E. G. McGavran, M. D., School of Public Health

Legal Responsibilities and Opportunities of Local Boards of Health, Wm. M. Cochrane, Assistant Director, Institute of Government

Federal-State Relationships in Public Health, J. W. R. Norton, M. D. N. C. State Health Officer

Relationship Between the North Carolina State Board of Health and Local Boards of Health, C. C. Applewhite, M. D., N. C. State Board of Health

Merit System Principles and Personnel Policies as Related to Local Health Departments, Donald Hayman, Assistant Director, Institute of Government.

"The Challenge of Public Health Today," Harry S. Mustard, M. D., Executive Director, New York State Charities Aid Association, and Member of the New York City Board of Health

On March 1st the Board members and the Lecturers were divided into discussion groups. The discussions manifested the keen interest and clear understanding by the Board Members of their

duties and responsibilities. It is encouraging that the institute was so successful that another one will be conducted in the not distant future.

* * * *

DDT INSECTICIDE IS SAFE IF WISELY USED

DDT, an essentially poisonous material, can be used with a wide margin of safety if it is wisely used, reports the Committee on Pesticides of the Council on Pharmacy and Chemistry of the American Medical Association in the Journal of the A.M.A.

DDT—in the form of powders, solutions, emulsions and aerosols—has been widely used in recent years to control plant and animal pests as well as disease-carrying insects with a great deal of success.

The committee, which recently reviewed literature and case reports on the substance, points out that the poisonous effect of DDT on living organisms decreases with the increase in complexity of the organism. Thus insects, a lower type of organism, are destroyed by the substance while human beings and the higher types of animals are "not likely" to be harmed.

Some human deaths, however, have been caused by DDT and therefore "certain precautions must be observed to guard against its potential toxic properties," they added.

A warning was given to farmers to be careful when applying DDT to food or fodder crops. DDT applied directly to the edible portions of a plant may result in poisoning. It should not be used on dairy cattle or animals being prepared for slaughter, the committee pointed out, since there is a danger of accumulation of the substance in the milk and tissues of treated animals.

Other precautions suggested by the committee are as follows:

"DDT insecticides should never be stored in food cupboards or medicine chests where there is a likelihood of contamination of food or mistaken use. All exposed foods, utensils and working areas must be covered when kitchen and dining areas are being sprayed. Chil-

dren's toys or cribs and rooms occupied by sick people should not be sprayed. Use of oil solutions on household pets should be avoided and DDT powders should be used only where they cannot be licked off. Intimate skin contact with aerosol discharge is to be avoided. Plants and aquariums in the home should be removed or covered before applying DDT sprays or aerosols. The use of oil solutions in the vicinity of open fires should be avoided because of the inflammability of such mixtures

"Persons exposed to large amounts of DDT dusts and powders under confined conditions or where dust particles are not carried away by free movement of air current should wear respirators. (Chronic poisoning from DDT may result from prolonged ingestion or exposure to small amounts.) Such conditions might be encountered in mass delousing procedures, larviciding with dusts, and manufacturing of formulating operations. Protective clothing should be worn when there is a possibility of greases and oils contaminating the skin, thereby enhancing the absorption of DDT dusts or powders

"Frequent or prolonged exposure to emulsions or solutions of DDT in petroleum oils and organic solvents should be avoided unless protective clothing, goggles and neoprene or solvent-resistant gloves are worn. (Oily solutions may be absorbed through the skin.) Clothing must be changed promptly if concentrates are spilled on them. A contaminated skin area which has come in contact with DDT soaked clothing or spilled DDT concentrates should be washed immediately with soap and water. Concentrates should be mixed in well ventilated rooms and fire precaution observed when volatile and inflammable solvents are present

"Operators involved in large scale spraying or fogging with solutions of 5 per cent or more of DDT should wear respirators and other protective devices. Smoking is to be avoided during spraying when combustible mixtures are used. Greaseless skin lotions should be used on exposed body surfaces when irritant solvents are present in the formulation.

Clothes should be changed and the body cleansed after each day's operation."

REPORTS ADVANTAGES OF ROOMING-IN PLAN FOR INFANTS

Rooming-in, the practice of keeping the newborn baby in his mother's room instead of in the hospital nursery, is advantageous to infants, parents and grandparents as well as to pediatricians and hospital administrators, writes Dr. Angus McBryde of Durham, N. C., in the *Journal of the American Medical Association*.

Dr. McBryde, pediatrician at Duke Hospital and Duke University School of Medicine, reports on the success of the rooming-in plan at the hospital since it was initiated three years ago. During that time, 2,067 infants have been born at the hospital with 1,862 of them being successfully kept in their mothers' rooms. The 205 babies, only 10 per cent, who were not kept in their mothers' rooms suffered from abnormalities or the condition of the mother was considered unfavorable to such an arrangement.

Giving a brief history of the development of hospital nurseries, Dr. McBryde brought out the fact that before 1890, babies were always kept in their mothers' rooms. However, the high incidence of infection in mothers made it necessary to remove the baby from close contact with the mother and nurseries were created. Today, as a result of modern obstetric methods infection in new mothers is rare and the advantages of keeping an infant close to his mother suggest a return to the practice of rooming-in.

The infant, Dr. McBryde said, benefits from the close physical contact with his mother by helping him adjust to his new world.

"Only by having him constantly near the mother, where she can hear and satisfy his demands, can he be without discomfort or distress," he added. "We encourage the mother to feel that crying represents the infant's need for her, in terms of either warmth or food, and so the infant may be taken into her bed at any time."

"The early closeness of the parent-child relationship, as it is initiated in rooming-in," he went on to say, "may be the first step in forming the proper close family relationship." He believes the strict adherence to rigid forms of child training and lack of affectionate treatment are often factors resulting in aggressive, maladjusted children.

The advantages of room-in for the mother begin, according to the article, "with the satisfaction and delight in meeting and handling her baby early."

Formerly, the article continued, mothers, as well as fathers, after returning home were afraid to handle their baby and were bewildered and anxious about his perfectly normal reactions, such as sneezing and crying, when he wanted anything from attention and food to a dry diaper.

In contrast, the procedure at Duke Hospital is to bring the child directly from the delivery room into the mother's room where he is kept in a bassinet at her side during her entire stay at the hospital.

During the first 24 hours, staff members watch the infant closely as the mother has often received sedatives or is exhausted. At the end of 24 hours, however, the mother is usually ambulatory and may aid in the care of the child if she wishes.

Dr. McBryde reports almost "universal approval" of the rooming-in plan by mothers in both the wards and private rooms. Very few mothers, he said, fail to take advantage of the opportunity to help care for the baby.

Caring for the infant is made convenient for the mother. All equipment for the baby is kept on an enamel tray on a table near her bed. The plan has been found to be satisfactory and approximates the usual home arrangement, Dr. McBryde said.

The fact that mothers now have more confidence in their ability to care for their children as a result of the rooming-in arrangement is shown by the 90 per cent decrease in telephone calls from new mothers during their first week at home, he pointed out.

Visitors are limited to the father and grandparents, who are allowed to visit whenever they wish and may aid in the care of the infant so long as they wash their hands and are free from infection.

A marked change in the attitude of many fathers toward their babies has been noted by Dr. McBryde. "They begin to share the responsibility at once and therefore do not feel that care of their infant is completely in the mother's province during the early months."

He concluded:

"Now that such a large percentage of infants are born in hospitals, it behooves all of us to make that process as safe and sane as possible. It is hoped that hospitals in the future will be built without nurseries for normal newborn infants who are born of healthy mothers."

* * * *

CANDY-LIKE RAT POISONS ARE THREAT TO CHILDREN

Rat poisons disguised as candy-like substances, especially those containing thallium, are a real threat to children, according to an article in the American Journal of Diseases of Children, published by the American Medical Association.

Thallium, a poisonous metal, is especially effective as a rodenticide because it is odorless and tasteless and easily transformed into highly palatable concoctions.

Drs. Clifford G. Grulee, Jr., of New Orleans, and Earl H. Clark of Denver, authors of the article, after describing the poisoning of four children who ate a thallium compound thinking it was candy, expressed the need for more controls in the use of the metal. All four children attended the same pre-school nursery in Galveston.

The doctors, formerly associated with the University of Texas Medical Branch in Galveston, reported that there is no satisfactory treatment for thallium poisoning and that two of the four children who ate the poison died.

Thallium poisoning, they said, is hard to diagnose, as the only characteristic symptom attributed to it is baldness and this usually does not develop until about

three weeks after swallowing. Until baldness appears, clinical findings are not definite, although evidences of respiratory tract disease and central nervous system involvement may be present, they added.

On investigation as to the source of the poison in this instance, it was learned that the child who had offered a substance as "candy" to his companions lived next door to an exterminator. Further investigation showed that the exterminator used a mixture of thallous sulfate, cereal and syrup as a rodenticide, a practice common in that community.

"The insidious exposure and high mortality in the four cases reported," said the doctors, "strongly emphasize the dangers of and the need for further control in the use of thallium compounds."

* * * *

REPORT PHYSICIAN PARTICIPATION IN SCHOOL HEALTH SERVICES

A gratifying level of interest, understanding and participation in local school health programs on the part of local medical societies is shown in a survey by the Bureau of Health Education of the American Medical Association, according to the Journal of the A.M.A.

The results of the survey—made under the direction of Donald Dukelow, M.D., and Fred Hein, Ph.D., of the A.M.A.'s Bureau of Health Education, Chicago—were compiled from more than 1,000 returned questionnaires from local medical societies throughout the country.

"In general," the Journal said "the report shows that individual physicians and medical societies are active in many aspects of school health services."

The poll revealed these facts:

One third of the medical societies replying have a school health committee. One fourth of the communities have school health councils, almost all of which include medical society representation. More than half of the medical societies report school physicians mostly on a part time basis. Eighty per cent of the communities told of established

methods of referring children to a physician through their families.

Procedure by which the family physician can inform the school of a child's special health needs was found in 64 per cent of the communities. Two thirds have modified physical education to meet special needs of pupils, and one fourth provide corrective exercise on medical prescription.

Basic health services for athletes are reported by four out of five. First aid facilities are present in over three fourths, but only one third have complete plans for emergency care.

Exclusion and readmission for communicable disease were found acceptable to school and health officials in 87 per cent of the communities. Only half reported reemployment and periodic health appraisal of school personnel.

The U. S. Office of Education, in cooperation with the Public Health Service is now making a companion survey of health services in city school systems of the nation, the article brought out.

The report concluded:

"Since the survey conducted by the American Medical Association, addressed to the county medical societies, has covered the relationship of such societies to the local school health program, the two surveys will provide a rather complete picture of the school health services available to children."

* * * *

REPORT FATAL EFFECTS OF ANTIHISTAMINES ON CHILDREN

The disastrous effects of an overdose of an antihistamine on young children as a result of accidental swallowing are compiled in a report by two physicians of the University of Michigan Medical School. Their observations serve as a warning to parents to keep these and other potent drugs out of the reach of children.

"The susceptibility of children to the convulsant action of antihistaminic agents is striking and impressive," Drs. James B. Wyngaarden and Maurice H. Seevers of Ann Arbor say in the Journal

of the American Medical Association. They added that "the mortality rate in infants in whom convulsions develop is very high." Antihistamines are being widely used in treatment of allergic diseases and cold symptoms.

(Dr. Wyngaarden is presently located at Massachusetts General Hospital, Boston.)

According to the article, there are at least eight known deaths of children under two years of age attributed to these drugs. Five of the deaths were accompanied by convulsions.

Treatment of convulsions from antihistaminic agents in infants has been found to be "none too successful," they said, since treatment is entirely symptomatic as a specific antidote is lacking. Only two cases of recovery from convulsions caused by antihistaminic agents in children under two are known.

The doctors described the sudden death of a 22-month-old boy who had been in good health except for a mild upper respiratory tract infection. He was brought to a physician about two hours after the alleged swallowing of a number of dimenhydrinate tablets (used for motion sickness, such as seasickness and carsickness). At first the baby was overstimulated and later generalized convulsions and skin rash developed.

Despite efforts to save him, the child died 4½ hours after swallowing the drug. As a result of postmortem examination the dimenhydrinate was listed as the cause of death "either as a direct toxic effect or partially as an indirect change resulting from anoxia (oxygen deficiency)."

The more violent reaction of a three-year-old girl to an antihistamine was also reported in the article though, fortunately, the girl recovered.

The girl "was found in a drowsy, listless, fretful state. She became disoriented and walked with a staggering, awkward gait. Jerkings of the extremities developed, and then she experienced generalized clonic convulsions."

She had been playing 1½ hours earlier in the bathroom from which 17 capsules

of diphenhydramine hydrochloride (used in treatment of allergies) were later found to be missing. Treatment was begun about five hours after the supposed ingestion. The description of her condition continued:

"There were recurrent generalized convulsions for about eight hours; the face was flushed, and the pupils were dilated and nearly fixed. Between seizures the child cried out and talked in a rambling manner and showed hyperextension of the trunk (bowed stiffening of the back) and involuntary movements of the extremities. The next day she appeared normal."

The same issue of the Journal contains an editorial commenting on new controlled studies of the use of antihistamines in the treatment of colds. These included Navy male recruits during two influenza episodes.

Two antihistaminic drugs used in therapeutic dose "did not prevent the common cold or modify the course in those who developed colds," and showed no superiority over placebos (harmless pills containing no medication), the Journal points out.

* * * *

EXPERTS TELL AT WHAT DISTANCE ONE SHOULD VIEW TELEVISION

For eye comfort, how far should a person be from the screen to view television?

Dr. William Blake, of Astoria, Long Island, N. Y., put this question to the Journal of the American Medical Association. Because of its controversial nature, the Journal submitted the question to three "competent medical authorities," and they all came up with virtually the same answer:

As a general recommendation for small or moderate-sized screens, a distance of roughly 10 times the diameter of the screen is found most comfortable for clear viewing and avoidance of eye fatigue.

This, substantially, is the same opinion as that expressed by the American Society for the Prevention of Blindness.

One authority whose answer is printed in the A.M.A. Journal, says "the optimal

distance from which one should watch television varies from one person to another, depending at least partly on his state of refraction and on the size of the screen. Placement of furniture and room size also influence one's preference. In general, a distance of 10 feet or more would be preferable, since then there is necessary only a moderate amount of convergence and accommodation. One should avoid sitting closer than five feet."

The authority said further that if eye fatigue occurs at a distance roughly 10 times the diameter of the screen in a person with no visual abnormalities, "the distance may be changed."

"In fact," he continued, "changing occasionally from one chair to another should help in avoidance of fatigue not only of the sense of vision but of the neck muscles. Regardless of the distance of viewing, there seems to be no evidence that eye fatigue in the 'normal' eye will cause pathological changes. The chief problem is that of comfort."

One of the other authorities, whose answers also were published in the A.M.A. Journal, said that the more defects there are in the television picture, "the greater is the tendency for visual fatigue."

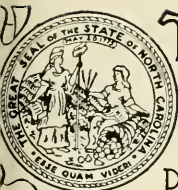
"This," he said, "includes such defects as out-of-focus pictures, those that are too dim, too flat and with too much contrast, and those that weave and jump. The viewing distance should therefore not be near enough for these defects, especially the graininess, to be overly apparent. This is more important than size of the picture, although the graininess and size may go together. Furthermore, the appearance of graininess will increase with the increase in brightness of the screen. Television should be observed in a lighted room, so that there is not too great a contrast between the screen and the background."

The third authority said that "when television is viewed from a distance less than 10 times the diameter of the television tube, no harm whatever is done to the eyes but the picture loses in quality as the scanning lines then become visible.."

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The State Board of Health publishes monthly **THE HEALTH BULLETIN**, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

Adenoids and Tonsils	Hookworm Disease	Typhoid Fever
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The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, N. C.

Prenatal Care.	First Four Months.
Prenatal Letters (series of nine monthly letters).	Five and Six Months.
The Expectant Mother.	Seven and Eight Months.
Infant Care.	Nine Months to One Year.
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Breast Feeding.	Instructions for North Carolina
Table of Heights and Weights.	Midwives.
Baby's Daily Schedule.	Your Child From One to Six
	Your Child From Six to Twelve
	Guiding the Adolescent

CONTENTS

	Page
The Cancer Program In North Carolina	3
How Many Lives For A Dollar?	4
Individual Health	8
Outline Campaign Against Chronic Diseases	9
"Immunization And Civil Defense"	15

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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

THE CANCER PROGRAM IN NORTH CAROLINA

BY JAMES F. ROBERTSON, M.D.

Chairman Executive Committee

Wilmington, N. C.

It has been my privilege to have rather intimate contact with many phases of the Cancer Program in our State, and I can vouch for the fact that much yet needs to be done on many fronts before any appreciable change in our vital statistics will be seen. Statistics show that deaths from Cancer in North Carolina are growing by leaps and bounds, and this rapid increase certainly cannot all be laid to the fact that people live longer and therefore there are more citizens in the cancer age group. The rapid increase in the death rate definitely places this disease in the forefront of those conditions which should be of grave concern to Public Health Officials. Deaths from Cancer in North Carolina in 1948 were 2,661; in 1949 there were 3,197, and in 1950 there were 3,733.

The only way we have at this time to fight Cancer is to discover it early, in its very beginning and eradicate it by surgery, x-ray or radium.

Acting on this premise the State Board of Health in cooperation with the North Carolina State Medical Society, and the American Cancer Society began in 1948 to set up Cancer Clinics in various sections of the State. The American Cancer Society undertook to publicize these Clinics and acquaint the public with the danger signals of Cancer and urge everyone over thirty-five years of age to go to a Clinic for examination.

The State Medical Society through the Local County Medical Societies furnishes the physicians, surgeons and specialists to examine the people who come to the Clinics. No charge is made to anyone applying for examination to these Clinics. They are supported by tax money, and must of necessity be free to any citizen. No treatment of any kind is given in the Clinics, and no medical advice is given to any examinee, except to tell them to report back to their doctor who will advise them what was found and what to do about it. In the case of every person examined in one of these Clinics a letter is sent to the examinee's private physician advising him what was found and making certain recommendations.

In the case of those found to have Cancer, who are unable to pay for the treatment needed, and who are certified by their County Welfare Department as being indigent, arrangements are made whereby either the State Board of Health or the American Cancer Society will go fifty-fifty with the County to finance the necessary hospital or other treatments.

As proof that these Clinics are getting results I would like to cite some figures from the Clinic in New Hanover County which will have been in operation three years by the time this Bulletin gets into your hands. During the first year of operation there were forty one cases of

cancer discovered (not including cases of known Cancer who came to the Clinic). Of this 41, 18 or 44% were classified as early, and 23 as late. In 1949 there were 71 cases of Cancer discovered in the Clinic, 48 or 67.6% were found to be early. In 1950, 72 cases of Cancer were discovered in the New Hanover Clinic, and of this group 55 or 76.4% were classified as early. This means that more and more people are going to the Clinics for examinations where there is still a possibility of a cure. These Clinics only scratch the surface as far as the eradication of Cancer is concerned, but they serve to alert the public to the danger, and to impress upon them the necessity of routine examination and of immediate examination if any of the well known signals of Cancer are present.

I doubt if there is a physician who has worked for any length of time in one of the Clinics who will not admit that he has learned a great deal about Cancer. I wish every physician could serve in a Clinic, once a week for a year; we would all then be more Cancer conscious and would automatically look for Cancer in the areas where they occur most frequently. Vis: skin, tongue and mouth, breasts, uterus and rectum.

At the Annual Meeting of the North Carolina Division of the American Cancer Society last October it was decided to appoint a Committee to look into the feasibility of the establishment of a

home for indigent, incurable cancer cases. To those of us who have given much thought to the matter, the need for such a home where terminal care could be given seemed to be one of the most pressing problems.

This Committee explored many possibilities, and has spent considerable time seeking a suitable location and trying to get an appropriation from the Legislature in order to remodel some building for this purpose. At this time either some of the buildings at Camp Butner, or the buildings—now abandoned—and formerly used as a County Home near Lumberton, seem to offer the most practical solution to the problem. But unless some funds are forthcoming from the State to put the Building in operating condition we are doomed to failure. Once the building is rehabilitated and equipped, we believe we can find the means to operate it. Those of us who see much of Cancer in its advanced stages know what a hopeless and tragic situation it presents to that immediate family. The patient is usually elderly and must of necessity live with some member of the family. This throws a tremendous financial and economic burden on a family which is already struggling to make ends meet. The result is often a broken home, and the Cancer Patient has the additional worry of knowing he is unwanted and is helping to use up the family's meagre resources in a hopeless struggle against sure death.

HOW MANY LIVES FOR A DOLLAR?

By MRS. GEORGE E. MARSHALL, State Commander
Executive Vice-President American Cancer Society,
North Carolina Division, Inc.
Mount Airy, North Carolina

"Three and one-half million veterans . . . an average cost of \$3,000 per case . . . a grand total of ten billion dollars!" I backed up and read again. Yes, I was right the first time. Unless by some miracle of research a change is wrought in the present incidence of cancer, some *three and one-half million* of the 18,-

000,000 living veterans of our Armed Services will have cancer, will be hospitalized by the Veterans' Administration, or will be eligible for VA hospitalization. Three thousand dollars for a life! The total cost, in cold cash, will approach *ten billion dollars*. We, the taxpayers, foot the bill.

Please don't misunderstand me. I don't begrudge one dollar spent for the most expert medical care of our veterans. And, incidentally, a large part of the taxpaying public *is* veterans. I do begrudge and resent the toll of lives, veterans and others, claimed by America's Number 2 Killer, *cancer*. It isn't necessary. It isn't tolerable! Cancer is *frequently* curable. Early cancer is *usually* curable. Cancer is the *most curable* of all the highly fatal diseases.

Yet—*more than thirty-one hundred* North Carolinians paid the forfeit for delay in 1950. Six times that number—some *eighteen thousand* Tar Heels—are victims of cancer tonight, as I talk this over with you. Half could be saved. Half do not need to die! You can help to save them! *How?*

Just this week a past-president of the State Medical Society said: "If we had such figures in accidents or polio, the public would be up in arms! They'd flee the state—go to Arizona!" Hysteria won't help. Action, *intelligent action*, on the part of every responsible citizen will help. We're in this thing together. Cancer enters one home out of two, strikes one person out of five, accounts—at present rates—for one out of every seven deaths in the nation. Whose lives, whose dollars are at stake? Yours and mine! We have a right and obligation to be concerned, to take action.

There are, of course, those who would say I am prejudiced when I claim that the finest men and women in North Carolina are the volunteers in the American Cancer Society. Perhaps I *am* prejudiced by ten years working with volunteers of all types—civic minded lay men and women, teachers, social workers, scientists, clergymen, lawyers, dentists, nurses, and busy physicians who give up their one day off to drive hundreds of miles—at their own expense—to plan the next step in North Carolina's progressive plan for conquering cancer. How far they have come in the past ten years! How proud we are of them! For the real story of what the men and women of North Carolina have done about cancer—a story I wish there were time for me to tell you tonight, I

suggest that you read *The 'Forties and Forward to Cancer Control*.

But there's a second group of unsung heroes and heroines in the evolving drama of the defeat of cancer in North Carolina. They are those, perhaps many of you, who, while not active members or volunteers of the ACS, contribute financially that the work may go forward. No contribution is too small to lend its voice to victory. The dime in the coin can may save more than one life. Quarters for research add up to nearly \$50,000 of American Cancer Society money—*your* money—invested in scientific study of cancer right here in North Carolina.

When I pay for a job, I like to know that the work is well-done and that I've gotten the most for my money. I don't believe that I am too unusual in that respect either. And so, in the time remaining, I should like to sketch in for you the fate of the dollar marked cancer control. Those of you who are business men and women will appreciate the significance of—and our pride in—the American Cancer Society's approval by the Better Business Bureau and the National Information Council. That is, to the business world, what the seal of approval of the A.M.A. is to the medical profession. It means that the experts commend our financial practices. But—back to that dollar!

Let us "make change"; for the first thing we do is to set aside a sacred *twenty-five cents*. I say "sacred" in all seriousness. That small, flat quarter, perhaps worn thin at the tobacco market, may bury the test tube in which the ultimate answer to the riddle of cancer will be found. Twenty-five cents of every dollar goes directly to cancer research. Some nine thousand Tar Heel lives are dependent upon the answers those quarters are seeking. The best scientists of the nation, selected by the National Research Council, are the trustees of this hope for tomorrow. North Carolina is proud of the recognition of her own men of science by the National Research Council and of Duke University, the University of North Carolina, and Wake Forest College,

where cancer research is under way.

A nickle and a dime! They won't buy much in this day of inflation. But that humble sum may save several lives! Divide the cost of one medical film purchased by the State Division of the American Cancer Society (average cost wholesale, \$160.00) by the number of North Carolina physicians seeing it in one year. There are approximately three thousand doctors in the state. Before twelve hundred have seen the film, the expenditure will have fallen to fifteen cents or less per physician viewing it. Who would hesitate to invest fifteen cents to bring his doctor the latest techniques on cancer? Who dares guess how many patients will benefit?

Since, we are told, more has been learned about cancer in the past decade than in the previous three thousand years, even our youngest doctors are busily engaged in professional study of cancer. This job of professional education is a tremendous one involving the nation's leading medical authorities. It is too big for North Carolina to swing alone. We have asked—*demand*ed more accurately expresses it—that our national office, through its Medical and Scientific Division, develop the program and tools the doctors of our state and the other forty-seven deserve and want. To defray the cost of this vital work—and other tasks too cumbersome for us at county and state levels—we send our dues, fifteen cents out of every dollar, to National. Over eight cents of the fifteen goes into education, chiefly professional education; although it also pays for the production of motion pictures and literature for the public. You men who have seen *THE DOCTOR SPEAKS HIS MIND* and you women who have seen the new *BREAST SELF-EXAMINATION* know what potent weapons in life-saving our films are.

Another *two cents* of the fifteen goes to the service program—to provide assistance in planning facilities (tumor clinics, detection centers, etc.) in North Carolina and throughout the nation. North Carolina has ten times the facilities for diagnosis and treatment of cancer it had ten years ago, in 1941, but

needs still more. Our two cents will help us plan them wisely. It also brings us the latest techniques of making the cancer patient more comfortable through volunteer services such as surgical dressings. With another *two and a fraction cents* of the fifteen, our national office administers the work in research, not only for ACS but for the Damun Runyon and Babe Ruth cancer research funds, as well as all phases of education and service at the national level. The remaining *three cents* is devoted to the Cancer Crusade, which, as you know, is the joint mass education and fund-raising program during the month of April, set aside by Act of Congress and Presidential Proclamation as Cancer Control Month.

Now we have paid our insurance for the future, research, and have enabled our professional men to keep abreast of the rapid changes in the cancer front. What about the money we use right here at home, the remaining *sixty cents*? What does it buy?

Service to the cancer patient and the potential cancer patient is an obvious and understandable objective of the American Cancer Society. This service takes two forms: professional service, which is costly, and volunteer or lay service, which takes time and devotion but which is done "for free" by trained volunteers, people of heart. By way of illustration, since 1945 the county Units and State Division of the ACS have matched dollar for dollar with local Departments of Public Welfare on the hospitalization of indigent cancer patients. By the end of this fiscal year the five year total of that item will have reached or surpassed the *hundred thousand dollar mark* in this state. But cancer is not limited to the poor. All citizens must have access to facilities for diagnosis and treatment of cancer. A grant-in-aid of \$25,000 of our money enabled the State Board of Health to activate its Cancer Section three and a half years ago. That \$25,000 served as a magnet to draw federal and, later, state tax money into the progressive program of Cancer Detection Centers operated across the state today by

county Medical Societies in cooperation with the State Board of Health. An additional \$25,000 of ACS money has been allocated to hospitals in the state to open or improve tumor clinic facilities or to purchase equipment needed in cancer therapy.

If we could convert volunteer service into dollars and cents, the contribution from that direction would probably exceed the concrete figures given above. One Unit reported 2,555 hours of volunteer work in the Detection Center in one year. At the rate of 80¢ an hour, that service would have cost the Center \$2,000! The same Unit made and distributed over 40,000 cancer dressings during the same period. Over the counter dressings of this sort cost a cancer patient as much as \$30-\$40 per month. These, of course, were free.

Yes, service, professional and lay, is a major task and one that is far from finished or even half-way adequately met for the moment. There will be no let-up in the pleas for service until the men and women of North Carolina are educated to the point of seeking medical attention at the first sign of a danger signal of cancer! This presupposes a working knowledge of the Seven Danger Signals on the part of every citizen—and the intelligence to "Strike Back at Cancer." Service for the immediate victims is vital, to give them a chance for cure; but *education* before the killer strikes is the salvation of every fifth person walking the streets today! This is our first and most imperative assignment—to *reach them before cancer does!*

We need help to do this. That is why, in less than five years more than \$15,000 of our half dollars and dimes has been devoted to education of professional groups—physicians, nurses, public health workers, and teachers. That money has bought not only the films for doctors but postgraduate medical courses, medical symposia, and professional journals placed in the hands of every physician in the state. It has bought workshops for nurses and teachers and short courses in cancer for public health students. Four teachers

from one county attended such a workshop. They requested and secured permission from their superintendent to show **THE TRAITOR WITHIN** at the fall faculty meeting. A teacher's life was saved as the result of that film showing. The superintendent called on us to tell us so in person. Our current budget for professional education in the state is \$17,000, for public education, \$39,000.

But I have fallen into the common, current day practice of talking in terms of "big" money. Let us re-examine that sixty cents. It is the same money, merely multiplied by the number of dollars given, which we discussed a moment ago. Counties may—and many of them do—submit projects approved by their medical representatives and receive funds for local administration. A number of the smaller Units choose to look to the State Division to match dollars with their Welfare Departments and to provide their educational tools. The choice is theirs. If they handle money on a local budget, they must, of course, audit and account for its use at the end of the fiscal year. It is encouraging to see more county Units "flexing their muscles", so to speak, and saying "We can plan the job right here at home."

More important than where the money is spent is where the results of its expenditure reach. Let me illustrate again. A simple leaflet, one purchased at the state level, made its way, as a mail enclosure, into the light bills of one of our larger towns. In a Negro rooming house that leaflet was dropped on the floor, unnoticed when the bill was opened. It was stepped on. Dirty and tattered as it was, it still served its purpose. One of the roomers picked it up. She promptly went to a tumor clinic. Yes, it was cancer and she was "found in time." That little leaflet didn't cost a penny, but—it saved a life. In another North Carolina city it was the leaflet in a bank statement that brought a beautiful young woman to the tumor clinic. Still in her twenties, she too had cancer. A chance to live for less than a cent!

And one cancer leaflet will be avidly read by any number of people. A tea-

cher recently asked students to get—on the leaflets she gave them—the signatures of every adult who read the leaflet. Some of those leaflets were returned literally covered with autographs.

The difference education makes is clearly evident in the state's oldest Cancer Detection Center, where, in 1948, less than half the cancers diagnosed were early or curable. Today three-

fourths of the cancers found are found "in time."

The American Cancer Society can't spend \$3,000 on a single case of cancer. But, with the very dollar *you* give, we may buy enough education for veterans to save the VA and the American taxpayer over \$100,000!

A dollar can buy a lot of Tar Heel lives!

INDIVIDUAL HEALTH*

DR. HUBERT A. ROYSTER,
Contributing Editor

Much is being said and done for the promotion of the public health, and it is without question one of the vital things of this age. To those engaged in preventing disease and making the world a more healthful place to live in this generation will owe its greatest achievement. In North Carolina, as in other States, health matters are being managed commendably and great credit is due our legislators, medical officials, and some intelligent laymen for the increasing interest everywhere manifested. I believe that progress is being made.

But (and this "but" will represent an addition rather than an antithesis) we must go behind the returns, if the campaign is to be really successful. Public health problems can not be thoroughly settled in the herd. In other words, we must go after the individual and then our task will be the promotion of individual health as the basis of sound public health. I do not mean to say that we should neglect our opportunities of reaching the people collectively, but our appeal, I think, should always be to the individual. We must teach him, warn him, encourage him, reason with him, set him a good example. So shall he leaven the lump.

The query, "Am I my brother's keeper?" has been answered in the affirmative by all those who are altruistically

concerned in public health. I believe just as firmly that we are also our own keepers. If I am a healthy person, I am of value to the community as a worker and relieve it of a burden; if I am sick, temporarily or permanently, I become a drag and a tax in proportion to my disability. Such facts are well understood. How necessary, then, that each individual should keep himself at all times in the best possible condition. This is the doctrine to preach. Herbert Spencer gave out the text years ago: "Perhaps nothing will so much hasten the time when body and mind will both be adequately cared for as the diffusion of the belief that the preservation of health is a duty. Few seem conscious that there is such a thing as physical morality."

There are, of course, numbers of people who are not responsible for their state of health. Many are handicapped at the start; others are not to blame for conditions that arise afterward, through no fault of their own. Some are born sick, some achieve sickness, and some have sickness thrust upon them. Every one is expected to do his best with what he has. The way to health is through right living. So that, besides educating the public to avoid disease, it is essential to train the individual to live right. This is the old theory of vital resistance. We can escape sickness in two ways—either by getting out of its reach or by throwing it off when it

*Reprinted from the February, 1912 Health Bulletin

comes. Both means are desirable. The first is secured through public health, which protects us from disease; the second through individual health, which enables us to fight disease.

Now, the individualism which I am emphasizing must apply with equal force to the individual health officer and the individual family physician as well as to the individual layman. From all accounts there is need of much sweeping in front of the doors of some health authorities. "Practice what you preach" may be too unjust an admonition, but that is the substance of what is needed. The public is surely prone to judge us as well by the laws as by the company we keep. I understand that some physicians are not careful to see that the plainest hygienic rules are carried out in their own households. Individual doctors even allow themselves to get into irregular habits of living and indulge in gross lapses of physical laws. I have heard that at least one medical man in this State and the wife of another contracted smallpox. A sanitary inspector in one of our principal cities also had a severe case of the same disease. He was allowed to qualify for his office, although he had never been vaccinated. Physicians have been heard to say that they did not "believe in" diphtheria antitoxin or that certain ideas in regard to sanitation were "all tommyrot." Such assertions tend only to bring

into bold relief the ignorance of those who make them, if they do not do actual harm to the cause of health advancement. These things ought not so to be. I sometimes believe that a part of our money and some of the time of our health experts might well be spent in instructing the doctors themselves in matters of health. Many a twist and snarl in their mental and moral fibre could then be straightened out. Some schools are now given special courses and granting a degree of Doctor of Public Health. These courses will be improved and enlarged until there are developed specialists in public health who shall be able to train others in the work all over the land. This condition certainly is coming to pass.

The whole affair is a matter of teaching and preaching, and, as in all true education, it is the individual we are after. In the last analysis we want to get hold of the average man, the most uninformed man, and tell him how to live right. Laws are good and we must have them; but there are some things that can not be legislated into people. I am not now nor have I ever been engaged in public health duty. My work lies in an entirely different field. Perhaps I have no right to present the foregoing criticisms and observations. I have done so solely upon the ground that I am interested in my native State and in the health of her people.

OUTLINE CAMPAIGN AGAINST CHRONIC DISEASES

The efforts to reduce the toll of cerebral palsy, epilepsy, diabetes, blindness and deafness were outlined at the National Conference on Chronic Disease. Plans were laid for new attacks on the problems of these ailments and for their prevention.

The three-day Conference, sponsored by the Commission on Chronic Illness in cooperation with the U. S. Public Health Service and the National Health Council, brought together representatives of the medical profession and lay organizations interested in chronic diseases. The Commission is an indepen-

dent national agency founded jointly by the American Medical Association, the American Hospital Association, the American Public Health Association and the American Public Welfare Association.

A report prepared by the American Academy for Cerebral Palsy said that the prevention of that disease depends for the most part on good prenatal and obstetrical care, good pediatric care in the early months of life, and the prevention of accidents, infections and other causes of brain damage. Early detection, diagnosis, treatment and train-

ing are necessary to prevent and minimize the effect of the disease, the report added.

Many patients with epilepsy can live a normal life and nearly all can be made useful members of a community through medical care and education of the patient, family and public, said a report of the American Chapter, International League Against Epilepsy.

"The psychologic handicaps of the epileptic are for the most part the results of social ostracism imposed by the public," said the report. "Prevention involves a change in the public attitude regarding epilepsy."

Preventive measures can reduce the number afflicted by blindness, according to a report of the National Society for the Prevention of Blindness. The nation's afflicted were estimated at 260,000 persons totally blind, 340,000 with vision barely useful and 1,000,000 blind in one eye.

Screening tests among school children have become important factors in the prevention of deafness, said a report of the American Hearing Society. It added:

"There is needed an awareness that a hearing test is the only means of finding hearing loss in the early stages. Even though restoration to normal hearing may not be achieved, progression of the deafness may be arrested in cases diagnosed early."

Hereditary indications were cited in connection with cerebral palsy, epilepsy, diabetes, blindness and deafness. The reports recommended close observation of persons with a family history of those diseases, and more education as to family implication of certain hereditary diseases or those with an hereditary predisposition.

Obesity Reported as Chronic Disease Factor

Poor eating habits that cause children and adults to become excessively overweight or underweight are responsible for the development of many chronic diseases, according to a report of the National Conference on Chronic Disease: Preventive Aspects.

"An estimated 25 to 30 per cent of the adult population in the United States is overweight and the percentage may reach as high as 60 per cent in women of the 50 to 70 year age group," according to the Experimental Biology and Medicine Institute of the National Institute of Health.

Delegates from 46 national health groups attending the three-day Conference on chronic disease prevention were told that programs to control obesity could do much to prevent diabetes, gall bladder disturbances, heart and circulatory abnormalities and hernias that occur in hundreds of thousands of people each year.

Emphasizing the dangers of excessive dieting the report stated that "weight control is primarily a form of medical treatment and should not be undertaken without medical supervision."

The incidence of diabetes, increasing at the rate of 50,000 cases each year, is more than twice as great in obese adults as in persons of average weight. Eighty per cent of diabetes in adults is associated with obesity, according to a report of the American Diabetes Association.

Programs to control obesity were suggested as a means of reducing the incidence of this disease. Emphasis was placed on the need to find and treat more cases of diabetes in the early stages to prevent complications. Ways and means of setting in motion these and other programs for prevention of chronic disease were considered this week by conference delegates.

Occupational Hazards

Occupational hazards also play a role in certain chronic diseases of the respiratory tract, heart and blood vessels, alimentary tract, liver, nervous system, muscle and bone structures, eyes, ears, and skin, according to a report by a group of authorities in the industrial health field. The report called for an accelerated industrial health program.

Tuberculosis

Undernourishment, fatigue, overcrowding, low economic status, poor personal hygiene and silicosis are among

the contributing causes of tuberculosis, the National Tuberculosis Association reported. The disease is spread by contact with tuberculosis persons and by the use of unpasteurized milk from tuberculous cows. An estimated 500,000 people in the United States now have the disease.

The report emphasized the importance of expanded mass chest x-ray surveys and wider use of tuberculin tests to find cases in time for successful treatment of the individual and to protect other members of his family from the disease.

Emotional Factors in Chronic Disease

Continued emotional disturbances play a part in causing some chronic diseases, according to the American Psychiatric Association.

Body structure or function may undergo changes under prolonged emotional strains. These physiological changes can cause certain chronic diseases, the report said. Also, poor diet and accident proneness, possible results of a change in the individual's habits, may in turn produce chronic disease or disability.

Emotional factors were considered important as causes contributing to hypertension, rheumatoid arthritis, epilepsy, colitis, ulcer, asthma, and certain skin diseases.

RAPID GROWTH OF VOLUNTARY HEALTH INSURANCE REPORTED

Voluntary health insurance is spreading so rapidly that a coverage of 90,000,000 Americans against the major costs of illness should come within the next two or three years, said Dr. Elmer L. Henderson of Louisville, president of the American Medical Association.

Writing in the *Journal of the A.M.A.*, Dr. Henderson said that between 70,000,000 and 72,000,000 people now have some form of voluntary health insurance.

Dr. Henderson, in reporting the rapid growth, said the second Blue Shield medical care plan, the United Medical Service, operating in the New York metropolitan area, has just passed its 2,000,000 mark in enrolment. The first

plan to reach that figure was the Michigan Medical Service. He said further:

"Together, the achievements of these two great medical care plans illustrate dramatically the eternal truth which some of our detractors would deny—that voluntary health insurance is a growing, successful, practical method of taking the economic shock out of illness.

"The United Medical Service, for instance, has reached its present size in six and one-half years. It operates in the 17 southern counties of New York State, with the active approval of the Medical Society of the State of New York and of the medical societies in those 17 counties. Half a million members were gained during 1950—one fourth of the total enrolment. The goal for the next year or year and a half has been set at further increase of 1,000,000 members.

"It is pertinent here to cite some figures showing the remarkable growth of the nonprofit medical care plans over the nation. There now are 72 Blue Shield plans in 41 states. Participating in their operation are 113,000 out of the 150,000 physicians who are in active, private practice. Last year the Blue Shield plans paid out \$150,000,000 for surgical and medical services rendered to member patients; this at the rate of 82 cents of every dollar paid in premiums.

"The Blue Shield plans are enrolling members at the rate of 28,000 every working day, and they now protect approximately 12 per cent of the population—more than 17,000,000 persons. Other nonprofit medical care plans not yet in the Blue Shield group cover an additional 2,250,000 persons. During 1950 the Blue Shield plans of the nation gained 5,000,000 new members, an all-time record growth.

"The Blue Cross hospital plans kept pace. They added more than 3,000,000 new members in 1950, carrying them beyond the 40,000,000 mark in total enrolment. Out of every premium dollar, Blue Cross plans are paying out close to 88 cents in benefits for services to their member patients.

"But the spirit of competition, of improvement, is by no means confined to the non-profit medical care plans. Final and complete figures from the insurance companies and the various other agencies in the health insurance field will not be available for several months, but it is a conservative estimate, based on all known developments in 1950, that between 70,000,000 and 72,000,000 Americans now have some form of voluntary health insurance coverage."

* * * *

SIX-POINT PROGRAM IN FIGHT AGAINST TB OUTLINED

A six-point program for the prevention of tuberculosis—"the white plague"—is presented in *Today's Health*, published by the American Medical Association.

The program, outlined in an article by Dr. J. De Witt Fox of Takoma Park, Md., recommended:

(1) Stay away from known spreaders of tuberculosis germs.

(2) Watch out for people who cough and spit.

(3) Avoid frequent colds and infections.

(4) Live a healthful life. Eat a well balanced diet. Get plenty of rest and sleep.

(5) Get to know a good doctor. See him whenever you need advice. Have him check your health at regular intervals.

(6) Beginning in your teens, have a chest x-ray each year. This is the best way to find tuberculosis early.

Dr. Fox pointed out that for centuries tuberculosis was a leading cause of deaths in Europe. As recently as 1900 it was the most frequent cause of death among Americans, killing about 200 per 100,000 population. Since then it has declined gradually as a cause to eighth place with a mortality rate of 30 deaths per 100,000 population.

He ascribed this decline as "largely due to the unremitting efforts of physicians, nurses, public health workers and a well-informed public."

He pointed out that while some drugs have been found that hold promise in the cure of the disease, the best weapons

still are prevention and early treatment.

"Because tuberculosis is a contagious disease, one should avoid contact with people known to have it in active form," he advised. "This includes even our dearest relatives; tuberculosis plays no favorites. The disease is spread by germs carried in the sputum (coughed-up discharge) of a person with active tuberculosis. The important thing in control is to prevent drops of sputum or dust containing the germs from reaching others."

He said tuberculosis is likeliest to develop when bodily defenses are temporarily weakened by fatigue or stress. He urged extra rest and sleep after recovery from a cold or other infection. Other recommendations were a well-balanced diet, plenty of water, cleanliness, fresh air, outdoor exercise and sunshine. Periodical chest x-rays, he said, will reveal tuberculosis in its early stage when early cure is possible.

* * * *

SAYS CIVIL DEFENSE PLANNING MUST INCLUDE GERM WARFARE

Plans for civil defense in event of war must include the possibility of biologic or germ warfare, a national health director said today, adding that more knowledge and better equipment are necessary if maximum protection of the population is to be insured in case of such an attack.

Dr. Victor H. Haas of Bethesda, Md., Director of the National Microbiological Institute of Health, Public Health Service, Federal Security Agency, discusses biologic warfare in an article in the *Journal of the American Medical Association*. The article was prepared by Dr. Haas at the request of the Council on National Emergency Medical Service of the A.M.A.

"It is possible," Dr. Haas said, "that biologic warfare may never be employed . . . still, plans for defense must take into account all the conceivable capabilities of a potential enemy, including biologic warfare."

Dr. Haas believes that the goal of an enemy who intentionally spreads germs would be to cause incapacitating illnesses rather than extensive fatalities.

This would tax medical, health and economic facilities to a great degree. As an illustration, he cited industrial plants in which effectiveness would fall off sharply if even less than 20 per cent of the employees failed to report for work and the serious handicaps which would result if key individuals died or could not report for work.

"Whatever the direct damage in terms of sickness, death, decreased efficiency and confusion, there would also be a psychological reaction on the part of the attacked population. Fear of the unusual or the unknown has panic potentialities, and this aspect of the problem would require serious consideration; undoubtedly an enemy would make every effort to exploit it."

One of the principal routes which would be used to spread germs, in Dr. Haas' opinion, would be the air, although drinking water, milk and other foods, drugs, cosmetics, money or papers are also possible methods of dissemination. Our physical senses alone would not tell us that germs are present as they would probably be odorless, tasteless and colorless, he said.

None of the present methods of testing water, milk and food products and of sampling air are immediately applicable for detection of biologic warfare agents, Dr. Haas said.

"While these limitations must be faced, they do not justify a policy of inaction or delay. Some of the simpler operations of sampling and identification should be put into effect, and it may be anticipated that experience and research will ultimately overcome many of the initial difficulties, while others can be minimized by efficient organization."

He advised "more knowledge and better equipment . . . to permit development of defense against biologic warfare to the extent that would permit maximum protection of personnel subject to attack."

The nine specific research projects he named as necessary to strengthen our defense are: 1, development of air sampling devices capable of detecting a wide variety of agents than currently

possible; 2, more rapid methods for isolation and identification of disease agents; 3, methods for active immunization after exposure; 4, antigens capable of immunizing against whole classes of organisms rather than individual species or strains; 5, mass immunization procedure which would permit immunization by inhalation of antigens by large numbers of people simultaneously; 6, procedures for sterilization of large air masses; 7, information on optimal dosage of disease agents and on infection rates after exposure to known dosages; 8, measures for arresting infections during the incubation period by adequate yet economical treatment; 9, specific treatment for diseases caused by smaller viruses.

Once an attack has occurred, civil defense must be directed toward minimizing the effects of an attack, he said. "This would include limiting the number of casualties; shortening the period of morbidity; reducing or preventing fatalities, and preventing development of secondary cases (spread of the disease through personal contact)."

One of the first steps in control of disease is the ability to recognize its presence. This ability, according to Dr. Haas, "can be developed to a greater state of efficiency than is usually considered necessary for peacetime communicable disease control."

For example, influenza, typhus, Q fever, typhoid and cholera are a few of the germs believed to be possible biologic warfare agents. The doctor, by knowing what constitutes the usual incidence of certain diseases in a particular locality at various seasons, can quickly recognize any unusual illnesses or familiar illnesses occurring in unexpected numbers. Any suspicious circumstances should be immediately investigated to determine whether or not the outbreak occurred as a result of biologic attack.

Absenteeism from schools or certain industries, overloading of hospitals and clinics—evidence of outbreaks of communicable disease in peacetime—should alert authorities that an attack might have taken place.

"Adequate preparation in advance and

proper reaction after an attack," said Dr. Haas, "will . . . permit limitation of natural outbreaks and . . . may confidently be expected to achieve control over infectious agents deliberately disseminated."

In the same issue of the A.M.A. Journal, Dr. James C. Sargent, Milwaukee, Wis., chairman of the A.M.A. Council on National Emergency Medical Service, viewed the prodigious role that health and medical professions must play in the civil defense picture as a whole. Dr. Sargent said:

"Civil defense stands alongside military defense as a vital component of our national security. This responsibility for national survival now rests on every citizen . . .

"It would be impossible to overestimate the importance of the civil defense medical and health services to the nation's survival in this regard. The sick must be cared for; enormous numbers of casualties must be treated, and all must be protected from the communicable diseases that could accompany the disruption of normal public health and sanitary safeguards . . .

"Plans must be made in peacetime, since the opportunity for careful preparation and organization is irrevocably lost during the confusion and urgency that is attendant on war. All trained health personnel, including dentists, nurses, veterinarianians, pharmacists, sanitary engineers, technicians of all types, as well as physicians, must participate and must cooperate wholeheartedly and unselfishly with each other and with those in authority . . .

"There are numerous responsibilities that devolve on the members of the health professions because of the possibilities inherent in the enemy's use of the newer weapons of warfare. The detection of atomic, biologic or chemical warfare agents, as well as the treatment of casualties from their effects, entails specialized knowledge and fac-

ilities that should be supervised, for the most part, by the health professions . . .

"The people of this nation must learn to live with rather than in fear of the atomic bomb, for its threat will remain with them for a considerable time to come. The public must be educated with respect to the true potentials and limitations of atomic warfare. Never before has there existed a weapon that permits such an opportunity for exploiting the people's fear of the unknown. The same might be said of biologic and chemical warfare. This is not intended to dispargue the effects of these weapons, for their use could cause untold thousands of casualties. But there is nothing new or mysterious in the effects of these weapons . . .

"The problem that confronts the health professions lies not in any lack of knowledge concerning these agents but in the lack of suitable plans and programs for handling large numbers of casualties from them."

* * * *

SELECT PITTSBURGH FOR 1952 CONGRESS ON INDUSTRIAL HEALTH

The Council on Industrial Health of the American Health Association has selected Pittsburg for its twelfth annual Congress on Industrial Health, according to an announcement by Dr. Carl M. Peterson of Chicago, secretary of the council.

The dates for the congress have not been fixed, Dr. Peterson said, but are expected to be sometime in February of 1952. The eleventh annual meeting held recently in Atlanta, Ga., drew medical and industrial leaders from all parts of the country for discussions of health problems in industry.

Dr. Anthony J. Lanza, chairman of the Institute of Industrial Medicine, New York University-Bellevue Medical Center, New York, is chairman of the Council on Industrial Health.

"IMMUNIZATION AND CIVIL DEFENSE"

BY WILLIAM H. RICHARDSON

Raleigh, N. C.

Throughout North Carolina, plans are being made for civil defense. Those in charge of the program are thinking about air raid warning signals, emergency fire fighting equipment, emergency medical services, and the many other services that are essential in disaster. It has been pointed out by those active in making our defense plans that definite responsibilities fall upon the shoulders of every man and woman in the State. Adequate defense calls for preparation against many emergencies which might arise in connection with all-out war. It means more than digging air raid shelters, or studying how to defend ourselves against the dangers of an atomic attack.

The purpose of this article is to call attention to a definite measure that is necessary in both war and peace, and which constitutes an important part of our civil defense. Most parents defend their children against hunger, by providing adequate food; against cold, by providing proper clothing; and against ignorance, by sending them to school. There are very few, if any, who would deliberately cause their children to undergo any physical suffering which might be prevented. But, many are unwittingly doing just that, by *neglecting* to have their children immunized against preventable diseases which cause both suffering and death.

Immunization Effective

Reports received by the State Board of Health show that, in 1950, there were 499 cases of diphtheria in North Carolina, practically every one of which could have been prevented, by means of immunization. For more than a decade now, there has been a law on our Statute books, requiring the immunization of babies against diphtheria, during the first year of life. Despite this, we continue to receive reports of diphtheria among our little children. There also occurred in North Carolina last year 3,552 cases of whooping cough.

Both diphtheria and whooping cough are extremely dangerous for small children and, although the death statistics for 1950 have not yet been completed, we know that many children died of these diseases in North Carolina last year. Responsibility for this must, of necessity, rest upon those parents who failed to have their children immunized. Such parents could have spared their children much suffering; they could have saved, for themselves, many dollars and could have saved the valuable time of attending physicians, releasing them for service to persons suffering from illnesses which could not have been prevented.

A physician once wrote the North Carolina State Health Officer that he felt resentment every time he was called upon to treat a child with diphtheria, because the disease is preventable. The loss in lives, money and time, in connection with preventable diseases, is bad enough in ordinary times, but now, while we are trying to conserve all of our resources, the need for immunizing all children against *every* preventable disease is greater than ever before.

Protection Is Simple

It has been pointed out by a physician at the State Board of Health that immunization now is so simple that there is almost no reason why every single child should not be protected against not only diphtheria and whooping cough, but also against tetanus, which is lock jaw, and smallpox. He went on to point out that many physicians now give diphtheria, tetanus and whooping cough immunizations in a combined form. Only one injection a month for four doses, starting at three months, will protect children against all three of these diseases for many months. Additional protection is needed by each child at one year, three years, and when he or she starts school. This additional protection is

provided by means of what are called booster doses—one injection of the combined immunizing agent is given at one year, three years, and at school time.

This same physician went on to say that these immunizations can be given separately. Your family physician will advise you as to the best procedure for your child. If you prefer, you may secure immunizations at your local health department, without charge.

Smallpox immunization should be administered at the age of one year, or soon thereafter. You may be interested to know that smallpox *now* is present in many countries, including England, which has socialized medicine, and no law requiring immunization against any disease.

The North Carolina State Board of Health, according to the physician in charge of Epidemiology, receives frequent reports of travelers who are coming to North Carolina, by air, from countries where smallpox exists. It is necessary for these people not only to be vaccinated, but to remain under observation, during the incubation period.

Do Not Relax Efforts

All of this means that, although you may not hear about smallpox, you cannot afford to become lax in the matter of vaccination against it. Therefore, it is highly desirable that every child be vaccinated, preferably at the age of one year, and certainly before entering school.

During times of war or even mobilization for defense—as at present—the population undergoes serious disruption. More people are traveling about. Housing conditions become overcrowded in many areas, especially those adjacent to military establishments, or where munitions of war are manufactured. We have examples of this in our own State. Where there is actually war damage, these conditions become much worse and existing medical facilities are inadequate.

In 1945—just six years ago—diph-

theria suddenly became epidemic in the wartorn areas of Germany. At the same time, many of our service men began returning home. Apparently, some of these and other travelers from that part of the world became carriers of diphtheria. The result was that, here in the United States, diphtheria also increased. To bring this problem even closer home, the 1945 diphtheria cases in North Carolina were more than double the number for 1944. We must protect ourselves from a recurrence of this unfortunate happening and, not only that, we should take advantage of all the immunizing agents, so that every child is protected as fully as possible, not only against diphtheria, but against all other preventable diseases which might become epidemic during periods of great stress.

The Epidemiologist for the State Board of Health has provided the following summary of this discussion. He makes five points, namely:

(1) All children three months of age, and older, should be immunized *immediately* against diphtheria, tetanus, and whooping cough.

(2) All children one year of age, or older, should be vaccinated against smallpox.

(3) Booster doses should be given to children at one year, three years, and before starting to school.

(4) Protecting children in this way is essential in peace time, and is even more essential, as part of civil defense, in order to conserve our medical and hospital resources for use in time of possible war.

(5) Contagious diseases follow war, so protect your family *now*.

And so we have some very definite advice on immunization of our children, as a part of any well ordered program of civil defense. A parent who neglects the immunization of a helpless child against diseases which cripple and kill may not of necessity be a criminal, but such parent certainly is extremely negligent.

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Lois Lee Barnes, Raft Swamp Township, Robeson County, bitten by a rabid dog. Photo by Penn Gray, Robersonian.

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The Prevention of Infantile Diarrhea.	One to Two Years.
Breast Feeding.	Two to Six Years.
Table of Heights and Weights.	Instructions for North Carolina Midwives.
Baby's Daily Schedule.	Your Child From One to Six
	Your Child From Six to Twelve
	Guiding the Adolescent

CONTENTS

	Page
Immunization Policy	3
Our Enemy—The Rat	5

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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

IMMUNIZATION POLICY

By A. H. ELLIOTT, M.D., JOHN H. HAMILTON, M.D.,
C. P. STEVICK, M.D., AND ROBERT J. MURPHY, M.D.
State Board of Health, Raleigh, North Carolina

Recommendations first made several years ago for the immunization of infants before the age of six months against pertussis have now been followed with general agreement in the literature on this subject. At the same time there has also been widespread acceptance of the principle of simultaneous administration of diphtheria and tetanus toxoids combined with pertussis vaccine. Earlier hesitancy to the use of diphtheria toxoid before the age of six months no longer appears to exist, to an important extent. The injection of diphtheria and tetanus toxoids early in infancy is necessary if they are to be used in combination with pertussis vaccine and the latter is to be administered at the age when protection against pertussis is most needed.

The use of these combined antigens is discussed in two articles appearing in the June 1950 issue of the Journal of the American Public Health Association. In a group of 189 infants receiving three injections of alum precipitated diphtheria and tetanus toxoids combined with pertussis vaccine at one, five, and nine weeks of age, respectively, di Sant'Agnese found that a rise in antibodies occurred in the majority. The dosage of the antigen used was 0.5c.c., 1c.c., and 1c.c., containing a total of 50 billion pertussis bacilli. The rise in antibodies was not

as satisfactory in these young infants as in older children, however, and the recommendation was made that immunization not be attempted before the age of three months.

Sauer and Tucker found that four doses of the alum precipitated triple antigen administered at three, four, five, and six months, respectively, conferred protection against diphtheria to 86 per cent of the infants studied, against tetanus in 100 per cent, and to pertussis in 98 per cent.

Sauer used a product containing twice the necessary amount of diphtheria and tetanus toxoids and 30 billion pertussis bacilli per c.c. Doses of 0.5c.c. were injected, giving a total dose of 60 million pertussis bacilli.

In a round-table on Immunology in Pediatric Practice, published in the January 1951 issue of the Journal of Pediatrics, Miller recommends the administration of 0.5c.c. of alum precipitated diphtheria and tetanus toxoids with pertussis vaccine (30 billion organisms per c.c.) at four to eight weeks followed in one month by a second injection of 0.5c.c. and after three more months, by a third injection of 0.5c.c.

All authors agree that recall or booster doses are essential at approximately one year and again before starting school. It is important to note that the level of immunity after booster doses

reaches approximately the same point in children immunized early in infancy as in those immunized later.

Reactions have not been found to be serious if care is taken to inject the material intramuscularly and to change the needle after the syringe has been filled. Should a serious febrile reaction occur, it is recommended that the subsequent dose be reduced to 0.1c.c. and the patient's response again observed.

At a meeting of State Epidemiologists in Atlanta in April 1951, Dr. Myron Wegman of the Louisiana State University Medical School recommended a schedule of three doses of the alum precipitated triple antigen at two, three, and four months with booster doses at one and six years.

The use of tetanus toxoid routinely in infant immunization is of special significance in relation to Civil Defense. A proposal has been made that tetanus immunization of adults be included in the nation-wide plans now being formulated. Some have felt that this procedure should be delayed until production of the material to be used could be increased adequately to meet the huge demand and until certain other more urgent civil defense needs could be met. In view of this situation, it appears to be a practical procedure to begin immediately the use of combined alum precipitated diphtheria and tetanus toxoids with pertussis vaccine where this is not already the case, in order that the infant population now undergoing immunization would not need to be reinjected except for booster doses. This recommendation includes the use of an alum precipitated triple antigen containing not less than 30 billion pertussis bacilli per c.c. and a total minimum dose of at least 45 billion.

There is a considerable weight of opinion that administration of tetanus toxoid is important as a routine peacetime procedure because of the fact that the prophylactic use of antitoxin in horse serum can be eliminated in most cases that have been so immunized. In a child who has previously received

tetanus toxoid and who has received a slight to moderately severe injury requiring tetanus prophylaxis, Miller recommends a booster dose of 1c.c. of fluid toxoid. This preparation is advised in lieu of alum precipitated toxoid since it acts as a more prompt stimulus of the patient's immunity. In severe injuries such as compound fractures or gross contamination of wounds, tetanus antitoxin is recommended by Miller at the same time as the toxoid.

When early combined immunization against diphtheria, tetanus and pertussis is carried out, there is adequate time in the immunization schedule in which to administer smallpox vaccine before the age of one year. This results in fewer reactions and the child is less apt to scratch the site of the vaccination. Six or seven months is a satisfactory age.

Early immunization has one other practical advantage from the public health standpoint, namely, that a higher percentage of young infants reach well-baby clinics and physicians' offices than do children of an older age.

Typhoid immunization is no longer recommended by public health authorities for routine use on a mass scale. In rural areas where typhoid fever still occurs, selected groups of the population should be immunized. It is also essential that all persons in contact with a known carrier or persons who anticipate exposure to unsanitary conditions receive typhoid immunization.

Rocky Mountain spotted fever vaccine is recommended for immunizing persons who are routinely exposed to wooded areas. Present incidence of this disease does not justify the administration of the vaccine to the entire population.

An outline summary of the above recommendations is as follows:

Recommended Immunization Schedule

- 1 month—Examination and conference with mother.
- 2 months—Conference. First injection of alum precipitated diphtheria and tetanus toxoids with pertussis vac-

cine (should include 15 billion pertussis organisms).

3 months—Conference. Second injection D-T-P.

4 months—Conference. Third injection D-T-P.

5 months—Conference. Vaccination against smallpox.

6 months—Conference and examination. Record result of smallpox vaccination and revaccinate if necessary.

7½ months—Conference.

9 months—Conference.

12-18 months—Conference and examination. Booster dose D-T-P.

School entrance—Examination. Booster dose D-T-P. Revaccinate against smallpox.

If the intervals between injections exceed the one specified, continue the immunization schedule unchanged.

When typhoid vaccine is administered, the following dosage is recommended for adults: 0.5c.c. weekly for three doses. This should be reduced proportionately for infants and children. Annual booster doses of 0.1c.c. intradermally should follow the primary immunization. The booster injection may be given subcutaneously, if preferred, using a dose of 0.5c.c. for adults and less for children.

OUR ENEMY — THE RAT

BY CHARLES M. WHITE

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How Rats Destroy Us

As far back into antiquity as records go, mankind and rats have waged a never-ceasing war. During some periods of this struggle the rats have, in some countries, been on the verge of complete victory by the total annihilation of their adversaries. Yet, there has never been a time when the extermination of rats has been regarded as a possibility by the most hopeful.

Nature endowed both rats and man with powers of adaptability not possessed by any other living things. Both have manifested the ability to survive and reproduce their kind in almost any earthly clime. Each is omnivorous, ferocious, and completely destructive of natural resources including all forms of life. The life span of man is longer but in rats this is compensated for by a far more rapid rate of reproduction. In spite of all our efforts toward rat eradication or reduction, the population of these rodents keeps pace with that of man. Experts estimate the number of rats in the United States to be approx-

imately the same as that of the human population.

The black death, or bubonic plague, which swept across Europe in successive epidemics from the fourteenth to the eighteenth century, was transmitted by rat fleas from rats to human beings. No greater calamity has occurred in history, including the world wars, the 1917-18 influenza epidemic and other major disasters. It is estimated that one-fourth of the European population or at least 25,000,000 people died of the disease. Mass hysteria and other psychological effects, as well as general disorder and social disintegration, caused economic, moral and political degradation to follow. While this disease has never become widespread in the United States, there have been recorded 505 cases during the present century. Of these 318 died. None of them occurred in North Carolina.

Endemic typhus fever, another malady which is transmitted from rats to human beings by rat fleas, does occur in North Carolina. From 1929 through

1950 there were 1,487 cases of this disease reported to the North Carolina State Board of Health. The case fatality rate is very low. About 2% of those who have the disease die of it.

Salmonellosis, a food infection disease, is often transmitted to man from food contaminated with infected rat urine or feces. The case fatality rate of this disease is about one per cent.

Hemorrhagic jaundice, or Well's disease, is usually acquired by man from food or water contaminated by rat excreta or from handling infected rats. In different outbreaks of this disease mortality has varied from 4 to 48 per cent.

Rat-bite fever, which has a case fatality rate of about 10% in untreated cases, is caused, as its name signifies, by the bite of infected rats. In a study made in Baltimore of 93 persons bitten by rats seven developed this disease.

Trichinosis, a disease acquired by eating infected pork, has a mortality rate of about 5%. Normally, the rat plays no part in the transmission of this disease as we do not eat rats, but sometimes hogs become infected by eating rats which have obtained the causative organisms by feeding on raw or improperly cooked pork and pass the disease on to us when we eat the hogs.

Human beings are killed by all of these diseases with transmission cycles involving the rat; hence their ability to spread pathogenic organisms is probably the most formidable weapon employed by rats in their never-ending struggle against humanity. Yet, aside from their role as disease bearers, there are other ways in which these rodents adversely affect mankind, in some cases causing only minor annoyance, but at times creating major catastrophes.

Hordes of rats have been known to bring on starvation and famine by the destruction of growing as well as stored food crops. Vast quantities of food are also rendered unfit for human consumption upon being polluted by rats. The U. S. Department of Agriculture estimates that the average rat consumes or otherwise destroys \$22.00 worth of food in a year. If this be true,

they cost North Carolina about \$88,000,000 annually. These destructive rodents eat eggs, kill poultry and other domestic animals and destroy large quantities of wild life. Structural damage to buildings and auxiliary facilities, such as plumbing and electric wiring, is often caused by rats. They are also responsible for many fires started by their gnawing on or dragging matches.

Know the Enemy

Before successfully waging war, it is necessary to have knowledge of the habits and characteristics of the enemy. In rat control, effectiveness is determined by the use which is made of basic knowledge of the rat.

There are two species of domestic rats in North Carolina, both of which are known by several names. The Norway rat, which is also known as the brown, house, barn, burrowing, sewer and wharf rat, is the larger of the two species. The roof rat, which is frequently known as the Alex, grey, black or climbing rat, as its name implies, is most commonly found at higher levels. Being a better climber than the Norway rat, this rodent is usually the one found in the upper stories and attics of buildings.

The reproduction potential of the rat is enormous. The gestation period is only 25 days, and litters range from 6 to 14. Mature rats remain fertile regardless of the season and during a year produce several litters, the number depending on such things as food, warmth, and shelter. Studies in Baltimore disclosed from five to seven litters annually. Heaviest breeding takes place during the summer months under normal conditions. For this reason, the effects of poisoning campaigns in the fall last longer than those conducted in the spring.

The behavior of rats is influenced by the same things which motivate humans, such as hunger, thirst, sex, fear, curiosity and maternal instinct. Hunger, thirst and the requirement for places to hide from danger are factors most utilized in rat control.

The rat has a highly developed sense of smell. Its taste is somewhat less

sensitive than man's. Many authorities say rats are color blind. The senses of hearing and touch are both very acute. Its agility and excellent sense of balance makes control operations tedious and difficult. A rat can jump nearly two feet high from a standing position and slightly over three feet with a running start. In jumping downward, a rat can cover a horizontal distance of 8 feet while dropping 15 feet by jumping outward from a standstill. By being able to reach 18 inches, they can scale a vertical wall if toe holds are available at that spacing or closer. They can cross the street on a telephone wire or climb a vertical 3-inch pipe if it is rusty. Falls seldom prove injurious to them. Norway rats will burrow into the ground as much as 5 to 6 feet to get under the foundation of buildings where food is available but they seldom go down over 18 inches for shelter or nesting. Sometimes their underground tunnels are several hundred feet long. Bodies of water are no barriers as rats have been known to swim a half mile in open water. They dive and swim under water without hesitation. They will gnaw through almost any material that is not as hard as their teeth.

While rats tend to remain close to their harborage as long as the food supply and living conditions are adequate, they will travel long distances when necessary. In rural communities they frequently leave buildings in the spring and live in the fields until the scarcity of food or search for warmth drives them back indoors. Mass migrations have been reported to occur when crops failed or other disasters took place.

The existence of rats in any area is dependent on food, water and harborage, and their density is usually in proportion to the availability of these necessities. These items must be maintained in any community for the benefit of mankind. If this could be done and at the same time make them inaccessible to rats, their control would not present a very difficult problem. The habits of both rats and humans prevent such an ideal solution. The

perseverance of the rat combined with its resourcefulness and physical characteristics makes it hard to erect and maintain barriers between it and food. Our careless habits and innate indifference too frequently result in a bountiful supply of everything the rat needs being readily available.

Ratproofing Buildings

Ratproofing of buildings in which foodstuffs are stored has been proved to be both effective and practical. Much of this work has been and is still being done in North Carolina on a community-wide basis under the supervision of local health departments in cooperation with the N. C. State Board of Health. Unfortunately, this activity is slow in achieving its goal due to the cost, lack of community organization, public indifference and individual opposition, as well as the need for continued inspection and maintenance. While rat-proofing is strongly recommended by us as one of the effective weapons against rats, cognizance must be taken of its limitations.

Don't Feed the Enemy or Provide Him Shelter

Even if all buildings in which foodstuffs are stored were to be completely ratproofed, our careless habits would still furnish room and board for them. When garbage is thrown out on the ground or left in open containers, we are giving succor to the enemy. As most dwellings can be entered by rats, the housewife is encouraging their residency by providing a happy home in which they can live and raise large families when she leaves scraps or other food at any place they can get to or allows accumulations of trash to form in which they can build nests.

Foods should be treated as potential sustenance for rats from the moment they are brought into town until final disposal of the garbage by adhering to the following practices:

1. Prior to preparation or serving, all foods should be stored in rat-proof containers.
2. Foods for chickens, hogs or other

animals should be stored in rat-proof buildings or containers.

3. Scraps of food should not be left on the table, sink, drainboard, floor or any other place.
4. Garbage should be kept in metal containers at all times. Never throw it out on the ground.
5. The garbage can lid should be tight fitting and kept on at all times except when its removal is necessary in order to deposit garbage, clean the can or remove garbage.
6. Cafes and other commercial establishments which produce organic wastes should store garbage cans in rat-proof, fly-proof garbage container houses.
7. Garbage should be collected at least twice a week.
8. Garbage should be disposed of by sanitary land fills or incineration. Never use an open dump.

Harborage is almost as essential as food to rats. For this reason, collections of trash should not be allowed in dwellings, business establishments, back yards, alleys, vacant lots or any other places.

From the foregoing, it can be seen that if food and harborage are not made available to rats, there will be no rats. Even though much progress is being made in that direction, the time is not in sight when we will cease to feed and provide homes for them. Many North Carolina towns have stringent laws regarding the storage and collection of garbage, the ratproofing of buildings and keeping premises free of rat harborage. Some have provided sanitary land fills and modern incinerators. Through education programs and clean-up campaigns, conducted by local health departments, much has been done to teach the housewife as well as owners of business establishments the importance of not feeding and housing rats. Yet, a peep into the alleys and back yards of almost any town will disclose piles of valueless trash, waste foodstuffs on the ground, uncovered garbage cans, open vents through which rats can enter and leave at will, and other conditions highly

favorable to the happiness and well-being of rats. A stroll around the average garbage dump reveals a conglomerate collection of the discards of modern civilization, in all stages of disarray, destruction and putrefaction, providing a rat Utopia. A herd of hogs is sometimes observed feeding on top and around the edges but leaving all the food needed by the rats. The pork from such hogs is almost always infected with *Trichinella spiralis*, the organism which causes trichinosis. The hogs become infected from eating scraps of uncooked pork or dead rats.

Killing Rats

Until we stop raising rats, it will be necessary to employ means for killing them in order to keep their numbers down to the bearable limit. This can be done by violent means, such as shooting or clubbing, which, though considered good sport by some, is not very effective in reducing the population. Predators, such as cats, dogs and ferrets, do very little good. Rats can be effectively destroyed in their burrows by several means, the most common method being that of pumping cyanide gas into the burrow. By attaching a hose to the exhaust pipe of a car and sticking the other end into the burrow, rats can be killed with carbon monoxide gas. Water forced into the burrow under pressure with a garden hose will drown rats. Several types of traps are on the market which are widely used in rat reduction, ranging from the simple snap trap to highly complicated, electrically operated traps.

Poisoned bait or water is the most widely used means for killing rats. A number of poisons used for this purpose are available, but most of them are so highly toxic to human beings and domestic animals that their use by other than highly trained experts is not recommended. Red Squill, the safest of all rat poisons, has been in general use for years. Until recently it was the only such poison recommended by the N. C. State Board of Health for public use. This material has been very satisfactory in bringing about temporary re-

ductions in the number of rats in an area. Bait shyness is quickly developed by rats after receiving a dose too small to kill or after seeing other rats become ill and die soon after eating it. The result is prompt enough to cause the illness to be associated with the bait. This poison, regardless of its disadvantages, has a place on a rat control program and is still recommended by the N. C. State Board of Health in areas where extreme caution must be observed against the possible ingestion by children or domestic animals, and for the campaign-type rat control activity where no follow-up work is to be done.

Warfarin

A new rodenticide has been developed and released for public use which is comparatively safe and highly effective. This material, now called warfarin, was for a short period called Compound 42 or WARF-42, and is sold under several commercial names such as Dethmore, Rax Powder, etc.

Warfarin, which is usually sold in powder form of 0.5% concentration, is entirely odorless and tasteless to both rats and man. When this concentration is mixed with yellow corn meal or other bait in the proportion of one part to 19 parts of the bait, it is readily eaten by rats. Bait shyness does not develop as with Red Squill. For this reason a continuous poisoning program can be kept in operation.

Warfarin is very slow in its physiological action on the rat and several feedings are usually necessary before it proves fatal. A single dose is rarely fatal. For several days after feeding no appreciable change is noticed in the rat's appearance or activity. On the third or fourth day subcutaneous hemorrhages are often noticed, while internal hemorrhages are occurring due to the anti-coagulating effect of the chemical. By this time the rat walks slowly and tends to drag its hind feet. Death is caused by suffocation resulting from lung hemorrhage or the want of sufficient blood to supply the tissues with food. Little or no blood is observed ex-

ternally unless the rat has been injured. Death comes so peacefully and quietly that the other rats do not connect it with food which has been eaten.

The hazards to humans and domestic animals are small but are considered greater than those with Red Squill.

When baits poisoned with Warfarin are put out around children or domestic animals, bait stations should be used. The stations most commonly used are wooden boxes with holes to permit the entry of rats and inside containers to hold the bait. Your local health department will be glad to supply information regarding the design, construction and placing of bait boxes.

Dead and dying rats poisoned with Warfarin should be burned up or buried to a depth of at least two feet to prevent secondary poisoning to domestic animals.

Your local health department will be glad to advise you regarding the use of Warfarin and places where it can be obtained.

In conducting an effective war against rats several methods of attack are essential as in other forms of warfare. Building barriers between rats and their food and harborage by ratproofing is both practical and necessary in order to conduct a successful campaign but by itself this method is not sufficient. Good housekeeping, premise cleanliness, proper handling of garbage, and other adherence to basic principles of sanitation is by far the best approach, but the impossibility of achievement on a complete scale is recognized. We will have rats to kill for a long time.

By the combined practices of ratproofing, cleanliness and rat killings, we can have satisfactory control.

NEED MORE PHYSICIAN EXAMINATIONS OF VIOLENT AND SUDDEN DEATHS

Only 13 per cent of the people in the United States are protected by adequate investigation of violent or sudden deaths, according to Dr. Richard Ford of Boston.

In most states, Dr. Ford points out in the Journal of the American Medical

Association, the coroner is not required by law to be a physician nor are there adequate facilities for thorough investigation of such deaths. Dr. Ford estimates that 300,000 (29 per cent) of all deaths annually are from violent or obscure causes.

If medical examination is not a definite part of the investigation in these cases, he said, the true cause and manner of death in many instances may never be established.

How does such medical investigation serve society?

Its most important function is to exonerate the innocent, Dr. Ford believes. But disclosing murders, providing evidence for civil and criminal courts, recognizing fatal contagious diseases, exposing industrial health and safety hazards are also important.

Too often, he continued, the driver of a vehicle involved in an accident is given full blame for killing or injuring a pedestrian whereas the victim—because of drunkenness, disease, or medication—is often equally at fault.

He also pointed out that there are sound medical reasons for many accidents. He described the case of a driver who was seen to "struggle" with the wheel of his car while driving through a downtown section. The car went out of control, turned over and killed the driver. An expense notation for a drug which was found on the body and a subsequent medical investigation established the man as an epileptic, a seizure having occurred while he was driving the car.

Nonrecognition of murder is common, Dr. Ford said. In New York City alone the medical examiner service discloses approximately 50 deaths annually which are due to violence not noticeable externally.

To demonstrate the role of medical examiners in establishing the innocence of a person, he cited the case of a small girl who died suddenly in a drugstore. The druggist was immediately suspected of leaving poisonous drugs within reach. A medical examination disclosed, however, that a red rubber toy balloon was lodged in the child's windpipe. She

probably had been chewing on the balloon, it was explained, and, through forced inspiration in sneezing or coughing, the balloon was drawn into the windpipe and prevented her from breathing.

If this death had not been investigated by thorough autopsy, to this day the druggist would lie under the shadow of suspicion, even though tests showed that the child had not been poisoned, Dr. Ford explained.

Massachusetts, Maryland and Virginia were the only three states named by Dr. Ford as being served by centralized laboratories for medicolegal investigation of deaths. These together with Maine, New Hampshire, Connecticut, Rhode Island and several cities and counties of other states comprise a total of 20,000,000 citizens served by systems in which the investigator is at least a physician, he said.

Commenting on this problem in the same issue of the Journal, Dr. Louis J. Regan of Los Angeles said:

"When death takes place at work or in a traffic crash, it is readily assumed that it is an instance of accidental death, while a medicolegal investigation may reveal a natural cause and thereby place the seemingly violent death in its true causal relation. . . .

"Since, in many localities, the investigation of violent or obscure deaths is insufficient, the number of murders that actually takes place or the number of deaths due to accident, suicide or natural causes that are erroneously attributed to murder cannot be estimated."

* * * *

RECOMMENDED USE OF PENICILLIN OINTMENT IN EYES OF NEWBORN

Silver nitrate solution, the preparation now being used in the eyes of newborn babies to prevent infection, may be replaced by penicillin ointment, as the result of a recent study. (Silver nitrate is required by law in many states.)

Drs. H. H. Davidson and N. J. Eastman and Sanitarian Justina H. Hill of

Baltimore, writing in the *Journal of the American Medical Association*, recommend that penicillin ointment be used in the eyes of newborn infants in preference to silver nitrate because, in their opinion, it is "the most efficacious, the safest and least irritative agent" for this purpose.

Dr. Davidson is on the staff of Johns Hopkins University and Hospital and is also senior assistant surgeon, United States Public Health Service. Justina Hill is also with the United States Public Health Service.

Laws requiring the use of silver nitrate are a precautionary measure to protect newborn babies from gonococcus eye infection. Such an infection—which can easily be transmitted at birth to an infant by a gonorrhea-infected mother—could result in serious eye damage or blindness.

The doctors expressed the opinion that, where necessary, regulations governing the use of silver nitrate should be changed "to permit the use of penicillin ointment in hospital practice when the physician prefers it to silver nitrate."

These recommendations come as a result of their study of three different methods of eye care at Johns Hopkins Hospital—penicillin ointment, penicillin intramuscular injections, and silver nitrate. Each method was used in rotation for a week at a time. During a two year period, 4,163 infants were treated with one of the three methods.

All three methods proved equally effective in preventing gonococcal infection, they reported, but the incidence of eye irritation varied greatly.

Only 10.6 per cent of the penicillin ointment treated babies showed any signs of inflammation such as redness, swelling or discharge. The incidence of irritation in silver nitrate treated babies was 48.7 per cent. Irritation from the intramuscular treatment of penicillin was recorded as 13.8 per cent.

"This observation," they said, "is in keeping with the general experience that silver nitrate produces chemical

conjunctivitis (eye inflammation) in a high proportion of cases. (This inflammation does not cause serious or permanent injury to the eye.)"

Two other points in favor of the change to penicillin ointment, according to the article, were that the cost is approximately the same as that of silver nitrate and it is easier to use.

* * * *

USE STREPTOMYCIN TO TREAT TUBERCULOSIS IN CHILDREN

Streptomycin has proved valuable in treating tuberculosis in children under 12, according to an article in the *Journal of the American Medical Association*.

Drs. William Berenberg, Charles D. Cook and Claire W. Twinam of Boston, authors of the article, tested the drug on 27 children between the ages of 7 weeks and 17 years.

They reported the following results: the disease was arrested in five, 18 were improved, three were unimproved and one was worse. The patient who became worse was a 7 weeks old infant who developed tuberculous meningitis.

All three of the patients who did not improve were over 12 years of age. Eight patients over 12 received the drug but only two appeared to derive any lasting benefit from it, the doctors said.

They explained that tuberculosis in children under 12 is somewhat different from the type encountered in adults and children over 12. Most children, they continued, between the ages of 3 and 12 do well without specific treatment.

The 27 children who received the drug were selected because they failed to improve with the usual treatment.

Streptomycin may be expected to "supplement but not replace" the time-tested measures of prevention of reinfection, hygienic regulation, dietary supervision, adequate rest and nursing care in the treatment of tuberculosis in children, they said.

* * * *

PRECAUTIONS HELP GUARD CHILDREN AGAINST POLIOMYELITIS

The National Foundation for Infantile Paralysis lists these precautions for parents to follow in guarding children against poliomyelitis, according to an article in *Today's Health*, published by the American Medical Association:

1. Keep children with their own friends. Keep them away from people they have not been with, especially in close daily living. Many people have a polio infection without showing signs of sickness and can pass the infection on to others.

2. Try not to get overtired by work, hard play or travel. If you already have polio in your body, getting very tired may bring on serious polio.

3. Avoid getting chilled. Don't bathe or swim too long in cold water. Take off wet clothes at once. Chilling can lessen your body's natural protection against polio.

4. Keep clean. Wash your hands carefully before eating and always after using toilet. Hands may carry polio infection into the body through the mouth. Keep all food clean and covered.

5. Watch for early signs of sickness. Polio starts in different ways—with a headache, sore throat, upset stomach, sore muscles or fever. Persons coming down with polio may feel nervous, cross or dizzy. They may have trouble swallowing or breathing. Often there is a stiff neck and back.

6. Call your doctor at once. Until he comes, keep the patient quiet and in bed, away from others. Don't let the patient know you are worried.

7. Call your own chapter of the National Foundation for Infantile Paralysis if you need help. Look for the number in the telephone book or call your health department for the address. Polio is a very expensive disease to treat, but no patient need go without care. You pay what you can afford, and your chapter pays the remainder of the cost of care. It is not a loan.

Quarantine for polio is unwarranted and medical experts agree that DDT

spraying has no value in controlling the disease, the article points out. Neither is there any scientific evidence to condemn swimming pools as a source of infection. No one has been known to contact the disease from water.

* * * *

AVOID EXTREMES IN SUNBATHING TO SECURE ATTRACTIVE TAN

For maximum benefits and minimum dangers in sunbathing, these suggestions are offered in an article in *Today's Health*, published by the American Medical Association.

1. Start with 10 minutes of exposure to sun on the first day. By increasing exposure time 50 per cent each day, a coat of tan should be acquired safely.

2. It is advisable to continue sunbathing all summer, for the beneficial effects of the ultraviolet rays will continue despite the deepened color of the skin.

3. Morning hours have been found most effective for acquiring sun tan. The hours between 11 a.m. and 2 p.m. are most dangerous.

4. Ultraviolet light may be as intense on misty or cloudy days as in direct sunlight. It can cause severe burning.

5. The notion that skin burns more readily when wet is a mistaken one. Sunbathing in shallow water or on the shore of a lake or the ocean is more likely to produce a burn than sunbathing away from the water, however. The sun's rays are reflected from the water, which intensifies their strength. Reflections from snow or ice are even more potent.

6. Lasting injury may be done if the eyes are not protected from the sun's rays. Dark glasses made of ground glass or several thicknesses of cloth over the eyes may be used.

7. Drinking plenty of water or other liquid when sunbathing is essential. Sunstroke is due to dehydration. Salt tablets are valuable, for salt tends to hold water in the tissues.

8. After a sunbath, be sure to cool off completely before plunging into cold

water. Heart attacks sometime result from such sudden changes, which put too great a strain of adjustment on the circulatory system.

9. Children's skins are more tender than those of adults. Naps and planned diversions in the shade or indoors are excellent for youngsters who tend to play too long in the hot sun.

* * * *

FIND "PUSH-PULL" TECHNIQUE MOST EFFECTIVE IN RESUSCITATION

An artificial respiration technique using a "push and pull" maneuver is the most effective of the manual methods, according to a report to the Council on Physical Medicine and Rehabilitation of the American Medical Association. The report also pointed out certain advantages of mechanical resuscitators but added that mechanical devices should be considered as adjuncts to and not substitutes for manual methods.

Drs. Archer S. Gordon, David C. Fainer and A. C. Ivy of the University of Illinois College of Medicine, Chicago, made a study of various methods of artificial respiration, both manual and mechanical. The study made by the Chicago doctors was to determine the most effective methods of artificial respiration, a procedure which saves many lives.

For their study they used 109 persons who had died less than a hour before the tests were performed, and nine live subjects who were taught to "voluntarily suspend their respiration."

For most of the tests, the doctors used a recently deceased person because, they said, such a subject is more comparable to a person requiring artificial respiration, except perhaps the deeply anesthetized person where there is a temporary cessation of breathing.

The effectiveness of artificial respiration depends on several things but this study was concerned mainly with the amount of air that could be brought into the lungs by various manual and mechanical means.

The doctors measured the minute

volume of air exchange with manual methods by having the body inspire and expire into a carefully balanced graphically recording instrument called a spirometer.

With the mechanical methods, they used a very sensitive and accurate flow meter to record the volume of air exchange. A record could be made of the amount of air exchanged in the lungs with each respiratory movement.

According to the report a comparison of the findings shows that the results of the living subjects and recently deceased ones were "essentially in agreement" except that the volume of air exchange in the living men was four times greater. The doctors explained:

"Either the volunteers unconsciously aided the artificial maneuvers or there is less resistance in the conscious person to respiratory exchange. We are inclined to place much more weight on the results from the corpses and to consider them applicable in resuscitation (restoration of consciousness) of near-dead asphyctic (suffocated) subjects."

The report continued:

"Our results reaffirm the fact that no one method of artificial respiration can be offered as completely satisfactory. However, there can be no doubt regarding the observation that those manual methods which utilize both a 'push and pull' maneuver are superior.

"The mechanical resuscitators employed in this study are not more effective than a properly performed 'push and pull' manual method. . . . Except for the armamentarium (equipment) of the anesthetist and of the fire or police emergency crew, all mechanical devices must always be considered as adjuncts to and not substitutes for manual methods."

The doctors, however, pointed out several advantages to a mechanical resuscitator. Some of the advantages are: less skill is required; it is not fatiguing; it can deliver pure oxygen; it can be used where physical manipulation of the body is impossible or would be harmful as during major surgical procedures, in accidents with extensive

burns, broken vertebrae, ribs and arms, for victims trapped under debris and during transportation to a hospital; and it signals when the airway to the lungs is obstructed and provides an aspirator.

At present the Schafer prone, or "push," method is used by more people than any other. A newer but less known technique employing a "pull" maneuver, involving lifting of the body at the hips, is the Emerson method. The doctors suggested:

"Those who are now indoctrinated with the Schafer prone pressure method can double the ventilating efficiency of the method by lifting the hips four inches 12 times each minute, alternating with a 'push' on the lower part of the chest. Lifting the hips is fatiguing and, after the crucial first several minutes, may be employed after every second or third 'push' on the lower part of the chest."

* * * *

EAR INJURIES ARE THREAT OF NOISE IN INDUSTRY

The control of ear injuries due to excessive sound—the most frequent threat to the ears of workers today—is a major responsibility of industrial medicine, according to Raymond Carhart, Ph.D., of Evanston, Ill. Dr. Carhart is associated with Northwestern University School of Speech and Department of Otolaryngology.

Auditory impairment due to excessive sound, known as acoustic trauma, damages the ears without doing other physiological harm, he pointed out in the Archives of Industrial Hygiene and Occupational Medicine, published by the American Medical Association.

Dr. Carhart said that acoustic trauma can be caused by a number of things: continuous noise, steady sound at high intensities, sound of percussive and explosive varieties, and pulsating noises, especially when unexpected and irregular. He cited the pneumatic hammer as a good example of "a dangerously strong percussion sound."

A full program for protecting the "ears of industry," he said, can be ef-

fective only if endorsed by both management and labor. This is his proposed three-point program:

1. Noises should be controlled with sound absorbing materials, by muting devices, or, if possible, by replacement with new, noiseless machines. If noise cannot be controlled by these methods, workers should be required to wear ear defenders.

2. A program of ear and hearing examination—for the protection of both the worker and his employer—should be carefully planned.

3. Analysis of each individual case should be the basis for appropriate job allocation. Workers with hearing losses or those susceptible to acoustic trauma should not be placed in situations where their impairment might constitute a hazard to themselves or others.

* * * *

TRANSCRIPTION OF TEEN-AGE HEALTH PROBLEMS RELEASED

The Bureau of Health Education of the American Medical Association announced the release of 13 electrical transcriptions of interviews with high school pupils on teen-age health problems.

The subjects, together with the cities in which the recordings were made, are as follows:

Detroit, "Youth at the Wheel;" Pittsburgh, "How to Be Popular;" San Francisco, "Looking Your Best;" Columbus, O., "Extra-Curricular Activities;" Phoenix, "Dope, Drugs and Smoke;" Lake Mills, Wis., "Food and Your Health;" Portland, Oregon, and Chicago, "Sports and Recreation;" Madison, Wis., "Date With the Doctor;" Cleveland, "Out-of-School Jobs;" Indianapolis, "Big and Beautiful;" St. Paul, "Choose Your Partner;" Austin, Tex., "First Offender;" Brooklyn, "Fears and Fancies."

The series, known as "Hi-Forum," comprises interviews made by tape recordings without scripts. They were based on suggested questions and topic headings sent to the students in advance. The students were selected by school superintendents.

Each program includes a summarization by Dr. W. W. Bauer of Chicago, director of the Bureau of Health Education, who supervised the production. Mrs. Harriet Hester of New York, radio coordinator for the bureau, conducted the interviews. The programs were announced by Cy Harrice of New York.

The transcriptions will be distributed through state and local medical societies to radio stations. About 700 stations use A.M.A. transcriptions, one half of these regularly.

* * *

SAYS CURB ON UNDULANT FEVER DEPENDS ON CURE IN ANIMALS

Eradication of brucellosis, or undulant fever, in human beings depends on its elimination in animals, says the Journal of the American Medical Association editorially.

Brucellosis, the editorial points out, is not transmitted from person to person and the prevention of human infection therefore is dependent on the control and elimination of the disease in animals.

According to the Journal, the number of cases of brucellosis has been increasing steadily. It says:

"In 1927 there were reported only 217 new cases; in 1937, 2,497, and in 1947, 6,073 cases. The states that have the largest number of cases are Iowa, Illinois, Texas and Wisconsin. The total number reported for the past decade has averaged about 4,000 annually. Chronic infections outnumber the acute by a ratio of at least 10 to one, and the chronic infections very frequently are not diagnosed. It is probable that 40,000 to 100,000 infections occur annually."

Brucellosis in animals causes abortion or premature birth, decreased milk flow and temporary or permanent infertility, the editorial continues. It estimates that about five per cent of all adult female cattle in the United States have the disease.

"Therefore, at least 1,300,000 dairy and 800,000 beef cows are involved.

From these figures it was estimated that the total annual loss of decreased milk production, fewer veal calves and necessary replacement of dairy cows is about \$92,000,000."

According to the editorial, when vigorous campaigns against the disease in animals have been carried out, great savings to the national economy have resulted. It is estimated that the reduction of the incidence of brucellosis by one half has resulted in savings to the livestock industry of \$50,000,000 annually.

For control of the disease in animals, the Journal named these three methods as available at present: (1) elimination of infected animals based on the standard serum agglutination test, (2) vaccination and (3) combination of the two.

"The evolution of treatment of brucellosis in human beings will probably be along the lines of combination of the known antibiotics," according to the Journal.

* * * *

SURGICAL TECHNIQUE AIDS HEARING ABILITY

A surgical procedure known as fenestration has brought increased hearing ability to 70 per cent of a group of deafened patients, two doctors report in the current issue of Archives of Otolaryngology, published by the American Medical Association.

The patients were suffering from a progressive type of deafness called otosclerosis, according to Drs. Louis E. Adin, Jr. of Dallas and George E. Shambaugh, Jr. of Chicago, authors of the article. Dr. Shambaugh is associated with Northwestern University Medical School, Chicago.

Otosclerosis is caused by bony growth in the passageway which carries sound to the inner ear. Fenestration creates a substitute channel through which sound can enter the ear.

The operation was performed on a series of 390 patients from 1940 to 1945 and results have now been observed from five to 10 years.

LIVE BIRTHS, INFANT DEATHS, AND MATERNAL DEATHS WITH RATES PER, 1,000 LIVE BIRTHS: NORTH CAROLINA AND EACH COUNTY, 1950*

(Place of Residence)

COUNTY	LIVE BIRTHS			INFANT DEATHS		MATERNAL DEATHS	
	No.	No.	Rate	No.	Rate	No.	Rate
N. Carolina.....	104,248	3,622	34.7	122	1.2		
Alamance.....	1,643	41	25.0	2	1.2		
Alexander.....	346	12	34.7	....	....
Alleghany.....	129	3	23.3	....	....
Anson.....	786	31	39.4	....	....
Ashe.....	530	22	41.5	1	1.9		
Avery.....	358	6	16.8	....	....
Beaufort.....	1,037	50	48.2	1	1.0		
Bertie.....	828	28	33.8	....	....
Bladen.....	887	47	53.0	4	4.5		
Brunswick.....	535	20	37.4	....	....
Buncombe.....	2,754	94	34.1	....	....
Burke.....	1,028	22	21.4	2	1.9		
Cabarrus.....	1,470	36	24.5	....	....
Caldwell.....	1,230	29	23.6	....	....
Camden.....	132	3	22.7	....	....
Carteret.....	621	21	33.8	....	....
Caswell.....	557	27	48.5	2	3.6		
Catawba.....	1,674	40	23.9	....	....
Chatham.....	583	20	34.3	....	....
Cherokee.....	374	14	37.4	....	....
Chowan.....	336	8	21.9	....	....
Clay.....	131	4	30.5	....	....
Cleveland.....	1,717	53	30.9	3	1.7		
Columbus.....	1,416	51	36.0	2	1.4		
Craven.....	1,488	40	26.9	3	2.0		
Cumberland.....	3,398	106	31.2	....	....
Currituck.....	129	6	46.5	1	7.8		
Dare.....	111	3	27.0	....	....
Davidson.....	1,023	48	46.9	1	1.0		
Davie.....	342	11	32.2	1	2.9		
Duplin.....	1,109	68	61.3	5	4.5		
Durham.....	2,305	55	23.9	3	1.3		
Edgecombe.....	1,599	78	48.8	2	1.3		
Forsyth.....	3,652	118	32.3	3	0.8		
Franklin.....	814	37	45.5	1	1.2		
Gaston.....	2,685	76	28.3	2	0.7		
Gates.....	227	8	35.2	....	....
Graham.....	179	6	33.5	....	....
Granville.....	839	25	29.8	3	3.6		
Greene.....	526	21	39.9	1	1.9		
Guilford.....	4,487	139	31.0	7	1.6		
Halifax.....	1,868	90	48.2	1	0.5		
Harnett.....	1,234	37	30.0	3	2.4		
Haywood.....	913	24	26.3	....	....
Henderson.....	738	23	31.2	....	....
Hertford.....	601	25	41.6	1	1.7		
Hoke.....	415	12	28.9	2	4.8		
Hyde.....	156	7	44.9	....	....
Iredell.....	1,428	66	46.2	4	2.8		
Jackson.....	417	12	28.8	1	2.4		
Johnston.....	1,607	55	34.2	1	0.6		
Jones.....	295	14	47.5	....	....
Lee.....	704	25	35.5	1	1.4		
Lenoir.....	1,266	64	50.6	3	2.4		
Lincoln.....	643	27	42.0	1	1.6		
McDowell.....	621	15	24.2	....	....
Macon.....	355	17	47.9	1	2.8		
Madison.....	417	14	33.6	2	4.8		
Martin.....	774	36	46.5	....	....
Mecklenburg.....	5,123	158	30.8	3	0.6		
Mitchell.....	376	9	23.9	....	....
Montgomery.....	427	9	21.1	....	....
Moore.....	879	25	28.4	2	2.3		
Nash.....	1,676	77	45.9	2	1.2		
New Hanover.....	1,588	56	35.3	....	....
Northampton.....	814	30	36.9	....	....
Onslow.....	772	25	32.4	....	....
Orange.....	794	23	29.0	1	1.3		
Pamlico.....	249	9	36.1	....	....
Pasquotank.....	627	34	54.2	....	....
Pender.....	476	15	31.5	2	4.2		
Perquimans.....	226	10	44.2	....	....
Person.....	727	18	24.8	1	1.4		
Pitt.....	1,805	73	40.4	2	1.1		
Polk.....	258	10	38.8	....	....
Randolph.....	1,103	33	29.9	2	1.8		
Richmond.....	1,087	42	38.6	1	0.9		
Robeson.....	2,936	133	45.3	5	1.7		
Rockingham.....	1,521	57	37.5	1	0.7		
Rowan.....	1,626	64	39.4	2	1.2		
Rutherford.....	1,050	21	20.0	2	1.9		
Sampson.....	1,415	41	29.0	3	2.1		
Scotland.....	843	35	41.5	4	4.7		
Stanly.....	825	13	15.8	1	1.2		
Stokes.....	463	14	30.2	....	....
Surry.....	1,180	35	29.7	2	1.7		
Swain.....	260	10	38.5	....	....
Transylvania.....	361	10	27.7	....	....
Tyrrell.....	130	4	30.8	....	....
Union.....	1,082	36	33.3	1	0.9		
Vance.....	915	31	33.9	2	2.2		
Wake.....	3,439	128	37.2	4	1.2		
Warren.....	696	30	43.1	2	2.9		
Washington.....	378	18	47.6	1	2.6		
Watauga.....	445	13	29.2	....	....
Wayne.....	1,683	58	34.5	1	0.6		
Wilkes.....	1,083	31	28.6	1	0.9		
Wilson.....	1,575	80	50.8	3	1.9		
Yadkin.....	450	8	17.8	....	....
Yancey.....	388	6	15.5	....	....

*Data are provisional receipts through February 1951 for 1950 occurrences.

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STATE HEALTH OFFICER REPORTS FOR 1950

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The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

Adenoids and Tonsils	Hookworm Disease	Typhoid Fever
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Table of Heights and Weights	Instructions for North Carolina Midwives
Baby's Daily Schedule	Your Child From One to Six
	Your Child From Six to Twelve
	Guiding the Adolescent

CONTENTS

	Page
Joint Responsibilities Of Public Health And Private Practice.....	3
Departmental Reports	7

Health Bulletin

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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

JOINT RESPONSIBILITIES OF PUBLIC HEALTH AND PRIVATE PRACTICE

*J. W. R. Norton, M.D., F.A.C.P.

Raleigh, North Carolina

The customary detailed report has been submitted for this Conjoint Session as has been done previously. It is felt, however, that instead of an annual review of activities at this time, it would be more helpful to mention, and comment on, some of the opportunities for constructive joint action by private practitioners and public health workers. Let us go into consultation regarding our North Carolina and our community patient just as we might determine the essential findings, make a diagnosis and work out a plan of treatment for an individual patient.

We are often faced with unreasoning and undeserved criticism and with open attempts to make immediate radical changes by those with selfish motives or by some with sincere intentions but lacking in basic understanding of the total problem. It is essential that we who have dedicated our lives to medical and health care understand each other and give intensive study to current problems and the best methods for their solution. We must resist all attempts to drive wedges between those physicians who work for salaries and those reimbursed on a fee for service basis. Clinicians, researchers, laboratory

workers, teachers, and public health physicians seek alike the goal of constantly improving health for North Carolina. Specialists and general practitioners benefit themselves and their patients when similarities are emphasized, rather than differences. In providing modern medical and health care, it is required that we work in harmony with each and all of the others. The best treatment includes attention to prevention. Desirable public health methods assist, and never interfere with ethical private practice.

Our embarrassment and disappointment at unfair criticism and selfish attempts at regimentation must not be allowed to induce a persecution complex with a resulting tendency toward superficial and emotional striking out blindly at foe and friend alike. Careful analysis should enable us to determine basic motives and it should prove helpful to discuss all medical and health planning with co-workers and with those who pay the bill. Either private practitioners, public health workers or the public operate under a distinct handicap when one group assumes that the other groups are not equally unselfish and are working in opposition. All sound public health programs have been initiated, and are maintained, under the leadership of public spirited private practitioners. The few short-sighted

Read before the Conjoint Session of State Board of Health and the Medical Society of the State of North Carolina. May 9, 1951.

*Secretary of the State Board of Health and State Health Officer.

personalities who would interfere with a continuation of this sound long-range plan fortunately are decreasing. Strife and distrust must be replaced everywhere by constructive and patient understanding.

A year ago attention was invited to the rising toll from diseases of the heart and blood vessels, cancer, nephritis, diabetes, mental disease and accidents. Again, there is basis for the confident belief that we can work out a program in the control of these health problems in the non-communicable field that will be ethical, acceptable and effective, encroaching upon the prerogatives of none. All public health programs directed against these problems will have but one objective, that is, to promote early private medical care for the patient and to insure the success of that care by providing to every physician, where needed, the services of trained personnel in case-finding, follow-up, and rehabilitation. We can make full use of lessons learned in developing dependable control techniques against communicable diseases and attack health hazards in the non-communicable field with the same vigor, tenacity and freedom from emotional or personal consideration. Neither the public health armamentarium nor that of the private practitioner can remain static. We must make progress together. The community patient and the individual patient have each received increasingly prompt, effective and adequate care. Public Health procedures have successively emphasized quarantine and fumigation, regulatory sanitation, isolation and immunization, chlorination and pasteurization, epidemiological investigation, nutrition and health education, prenatal care and family planning, case-finding and working out arrangements for early treatment by private physicians. There is always resistance to change and the timid have predicted dire calamity as procedures acceptable in former days have become obsolete or the emphasis has been shifted. Private practitioners will have happier and better work when each and every cancer, heart disease,

diabetes and mental disease are found early just as they did when children became immunized against smallpox, typhoid, diphtheria, whooping cough and tetanus, and tuberculosis and syphilis were detected earlier. Prompt elimination of reservoirs of infection and of influences that undermine individual or community health has become a recognized necessity.

The field of opportunity for cooperation between public health and private practice is neither limited to communicable disease control nor to services for the indigent. Whatever proves most beneficial to the conservation, promotion, or recovery of health for the individual or the community patient has been observed to be good for the doctor. There are no exceptions of consequence to this rule. When we prevent the preventable, provide for universal early case-finding and arrange jointly for prompt and adequate treatment, no one suffers. The private practitioner is aided and the public benefited by state and local health departments that work toward prevention of disease, assist in case-finding and help to provide expensive equipment and facilities for treatment. Your public health departments are striving wholeheartedly for improvement of working conditions for private practitioners and for the development of voluntary prepayment hospital and medical care plans.

As individuals and as a profession, we must continuously strive to make good with the public who pay the bill not only for public health but for private practice as well. Better training in public relations and in our civic responsibilities is needed for our profession which must be alert to the continuing necessity for current internal corrections and long-range planning. This remains the biggest gap in medical education. It has been said that, "the public is down on what they are not up on." As individuals and as a profession we must have said of us that we are earnestly striving to make good and better, not that we appear as if we think we have arrived. In some cases private practitioners, while alert to the

need for improvements in the care of individual illnesses and injuries, have overlooked their opportunity and duty for leadership in planning the provision of efficient local health departments and hospital and medical care services for their community to assure prevention, early case-finding and adequate treatment promptly available. It is desirable that our grievance committees aim toward a basis for long-range constructive planning as well as delayed corrections. If physicians fail to lead in community health planning through boards of health, formation of health councils, rural health conferences, and through all other means, those who take over this function may even omit medical consultation during the planning stage of their activity.

The public is not fully informed on its part in adjustment to some of our modern changes. With good roads, electricity and telephones and desirable developments in clinics and hospitals there is no more need for a physician at every crossroad than for a general store. A doctor ten miles away may be more readily available now than the one who a generation ago was in walking distance. A well-informed public can also conserve the doctor's time and save considerable expense by office instead of home visits, day rather than night calls, and by more prompt but shorter hospitalization. In former generations the doctor and hospital were used only in extreme emergencies. Medical costs are less when the physician is consulted early for the "ounce of prevention" or the "stitch in time."

Perhaps the glamor of the medical specialist and the specialized or categorical public health worker has been disproportionately emphasized; certainly too little is associated with the general practitioner and the generalized service of the local health department. Medical students fear lack of prestige in general practice and the public and appropriating bodies get exaggerated views of individual diseases and other health problems rather than an enthusiastic appreciation of the value of the best generalized medical and health ser-

vice fitted to the needs of each individual and community.

Constructive suggestions for improvement of public health practices are always welcome from individuals and from the county and state medical societies. These should be made to local boards, or the state board, of health, however, and not handled so as to leave the impression that we in medical and health work are a house divided against ourselves. County medical societies are urged to furnish leadership and guidance in medical and health planning. Local health departments are relatively free and should be responsive to their local medical societies and the people they serve. State Board of Health rules on policy are general and flexible. Where we fall short in uniformity we gain in freedom and utmost accomplishment in school health and other services as we appreciate more fully our local health departments. Your health officer, local or state, welcome the kind of relationship each of you would wish if you were a health officer.

Two misconceptions that I would like to speak against have been encountered. One is that the use of tax funds inevitably leads to bureaucratic control and loss of individual freedom. The selective and wise use of tax money may have the opposite effect. Federal appropriations to our State Board of Health and state and federal monies used by our local health departments aid and assist, but have not interfered with, our complete state and local freedom. The same can be said, so far, with regard to Hill-Burton funds in the construction period. Hospital maintenance problems are becoming complicated and deserve careful long-range planning.

Another misconception is the idea that North Carolina public health work infringes upon the field of private practice and leads to increasing governmental controls. Each and every one of you are invited to analyze the work of your State Board of Health and your local health department with care and you will convince yourself otherwise. Which of these services would you as private practitioners eliminate or be

able, or wish, to do altogether by yourselves,—environmental sanitation; control of sewage, water and food; communicable disease epidemiology; maternal and child health; health education; vital statistics; diagnostic and central laboratory; oral hygiene; industrial hygiene; mental health; organizing for cancer case-finding; planning school health services; making arrangements for crippled children's work; nutrition education; accident prevention education. Physicians on our State and local boards of health have a major share in planning and in guiding policies in this State. North Carolina physicians, dentists, pharmacists and other leaders can take real pride and reassurance of continued freedom from medical regimentation in the excellent public relations created by these health services.

A matter worthy of mention, even in a brief report, is that some who take the shorter, easier, cheaper training for the care of the sick are increasing their insistence that no distinction be made between them and those with more thorough preparation. In the 1951 Legislature there were introduced five bills as follows: chiropodist to be defined as the physician and surgeon of the foot and leg; naturopaths to have a special board; chiropractors to sign death certificates; drug clerks to become assistant pharmacists; optometrists not to be distinguished from ophthalmologists in referrals by public agencies. A common thought is seen in all five bills;—"Do less, but demand as much recognition as the one who does more. Scream 'discrimination!' when a distinction on the basis of qualification is attempted." Does the plan of salvation operate "without discrimination" when it promises a crown only to those who bear the cross? Ability to select and being able to make a distinction—being dis-

criminating—among those who render medical and health services are basic necessities for progress. Remove this freedom from public agencies and the loss of individual freedom may soon follow.

Other items of interest from the 1951 General Assembly are: \$50,000 for a cancer hospital for indigent patients in the terminal stage of the disease; \$86,500 for crippled children; a stream sanitation law to be administered by a committee under the State Board of Health; a rewritten tuberculosis control law; setting up a board for registration of physical therapists; and slight amendments to our laws relating to vital statistics; retirement of public health workers; diphtheria immunization; and sanitary districts. The new State Health Department Building is to be officially known as the "Cooper Health Building."

It seems appropriate to close by reference to one whose life was devoted to increasing joint action by private practitioners and public health workers through which everyone has been benefited. After forty-five years in private practice, local and state health work, Dr. George Marion Cooper was gathered to his fathers on December 18, 1950. His and succeeding generations reverently give thanks to our Creator and call him blessed. For many, his unselfish and devoted service adds years to life and also life to years. His life is proof that public health and private practice can advance hand in hand and that the health of each and all is thereby made better. He led us far along the road we should follow. He proved that as we overcome or divest ourselves of handicaps that beset us as an individual or as a profession our hold on those things we would like most to keep is strengthened.

DEPARTMENTAL REPORTS

North Carolina State Board of Health

January 1, 1950 - December 31, 1950

CENTRAL ADMINISTRATION—J. W. R. Norton, M. D., State Health Officer.

When the State Board of Health was reorganized, effective February 1, the staff of the Central Administration remained practically intact; that is to say, Public Relations, Budgets, Files and Personnel remained in this Division, under the direct supervision of the Secretary and State Health Officer. The work of those in charge of printing and mailing was transferred to this Division.

We will now take up the above, in the order named on the official organization chart:

During 1950, the Senior Publicity Specialist delivered fifty-two broadcasts, in person, over Station WPTF, in Raleigh. He also cleared all statements for the press authorized by the State Health Officer, in addition to routine news releases. Incidentally, it might be stated here that the radio program later was enlarged to include three stations, instead of one. In addition to WPTF, the State Board of Health program is now heard each Saturday over WBT in Charlotte and WWNC in Asheville. During the period covered in this report, the Senior Publicity Specialist attended the meeting of the Southern Branch of the American Public Health Association in Birmingham and the meeting of the American Public Health Association in Saint Louis. He also assisted the State Medical Society in giving publicity to its annual meeting in Pinehurst, as he has done since 1938.

Next in order we find Budgets. The total amount budgeted for all purposes was \$5,068,141. Included in this total were: State funds, \$2,081,166; Federal funds, \$2,927,369; Special Accounts, \$59,606. The total number of vouchers

issued was 17,209. A breakdown of these various funds appears in the official records of the Budget Officer.

The Personnel Office made 105 appointments within the State Board of Health, of which 38 were in professional classification. Separations totaled 108, of which 45 were in professional classifications. There were 47 reclassifications, the majority of these bearing on salary increases. Salary increments were granted to 209 employees and increases to 15. Forty-five employees were certified as permanent. As of December 31, 1950, there were 336 budgeted positions in the State Board of Health, 37 of which were vacant. In the local health departments, there were 320 appointments and 336 separations; reclassifications, 119; salary increases, 548; certified as permanent, 267; as of December 31, 1950, there were 1,083 budgeted positions in local health departments, of which 59 were vacant.

During the year, the mailing room distributed the following pieces of literature: health education, 1,584,646; Maternity, 44,848; child health, 93,247; miscellaneous supplies, 48,492; midwife supplies, 5,804. During the year, 3,273,175 multilith forms were printed. This work also is in Central Administration.

Central Filing has continued to expand. This office receives, classifies, files and makes available for use copies of all official letters, reports and written transactions from the State Health Department. During 1950, approximately 155,076 pieces of material were received for filing; 37,626 individual searches for material were made. The library is maintained primarily for the convenience of employees of the State Board of Health. One hundred twenty-six new medical and Public Health books were received during 1950; 59 journals were subscribed for, and fifteen journals were bound in volumes.

PERSONAL HEALTH DIVISION — A. H. Elliot, M. D., Director.

Before attempting a report on the activities of the Division of Personal Health, it should be stated that the Division suffered an irreparable loss in the death of its Director, Dr. G. M. Cooper. Dr. Cooper had developed all of the different branches of the Division from their very beginning to their present position of rendering an unlimited and invaluable service to the whole State of North Carolina and most especially to mothers, infants and children. May we hope that his influence for the truth and for better health will live on in the efforts of the present and future employees of this Division.

Sections of the Division of Personal Health

Maternal and Child Health
(Including Premature Program)
Crippled Children's Program
Nutrition
Cancer Control
Heart Disease

Maternal and Child Health: During the past year, 6102 prenatal and well baby clinics were held with the following attendance records:

Maternity 29,644

Well baby and preschool 48,812

Booklets, leaflets, etc., on prenatal care and care of infants and children were distributed to the following extent:

Maternity 44,848

Child Health 93,247

1950 was the second whole year of operation of the premature program. Two new centers were opened (Rex and James Walker Memorial) making a total of six centers. There are also four secondary centers (our help: special training for nurse—2 incubators). Special refresher courses for public health and hospital nurses are available at Duke. All except eight county health departments have been supplied with transportation incubators for getting prematures to the centers or to some hospital. 629 premature infants received care under this program last year.

Crippled Children: During the year

there were 307 clinics held serving 5,501 new and 5,724 old cases. Seven hundred and twenty were admitted to hospitals and 201 appliances were paid for. 1950 opened with 20,831 on the register (many polio cases). This load so nearly exhausted the appropriated funds that many non-emergency cases had to be postponed and the hospital stay of acute cases had to be shortened.

Two special features of the year were: (1) the operation of a three-weeks summer camp for crippled children on the Pamlico River. Forty-two children attended. This camp was without cost to the Crippled Children's Program or to the children. It was supported by community contributions. (2) One of the department's nurses was invited to attend the White House Conference in Washington, December 3-7. This conference was concerned with child development in the fields of health, religion, recreation and social service. Since then this nurse has had conferences throughout the State on the subject matter of the Washington Conference.

Nutrition: The director and ten very specially trained nutritionists and dietitians cover most of the State through health departments, hospitals, institutions, clinics, communities and schools. The importance of nutrition in all ages and under all conditions is being taught.

Special service is given State institutions in kitchen arrangement, food purchase and preparation, food habits, etc.

Teaching nutrition to public health nurses—school teachers receive special attention. Diet habits of school children are surveyed and in many schools animal feeding demonstrations are conducted. Special diets for low income groups are stressed.

Most of the time of the two dietitians is spent in the various State institutions, by invitation, advising and consulting with the persons in charge of feeding the inmates. Special attention is given to construction, arrangement and equipment in new and reconditioned kitchens. Planning of meals, selection and purchase of food mate-

rials are given careful consideration.

Some of the special projects during the year were with welfare departments on feeding ADC children, with training centers connected with UNC and the school lunch program.

Cancer Control: During the year eight Detection and Diagnostic-Management and three Detection Centers were operated. On June 30 the Winston-Salem Center was closed and the members of the Forsyth County Medical Society elected to do the work in their individual offices. During the year 472 clinic sessions were held; 11,775 examinations were made in the detection centers, 4,579 of them were referred to their family physicians, 3,287 were referred to the Diagnostic-Management Centers and then on to their family physicians. This shows that 7,866 patients were referred to private physicians. 259 new cases of cancer were diagnosed and 52 already known cases were reviewed. 579 biopsy examinations were reported to this office. Approximately 2,500 cases of cancer were reported during the year. The 1949 Legislature appropriated \$50,000 for the treatment of indigent cancer cases. This is confined to cases offering hope of cure or arrest.

Mobile Gastric Cancer Detection: This unit is being operated on an experimental basis. It is planned to do about 10,000 cases and then evaluate the procedure to determine whether or not the procedure is practical. This unit has served only in Durham and Wilmington and has done slightly over half the proposed ten thousand cases.

The cancer detection and diagnostic centers have the approval of the Cancer Committee of the State Medical Society and during the year a representative of the American College of Surgeons visited each of the centers and after a thorough investigation recommended to his board that they be considered for approval.

Free examinations of cervical smears by the Papanicolaou method is available to all the centers. Four of the centers are using this as a routine screening method. 4514 smears were examined. Most of the centers are ex-

pected to use this method soon.

Heart Disease: Very little has been done in heart disease control. Part of the salary (\$6000) of one of the teachers at the University is paid out of this appropriation. The full salary of an EKG technician at one of the teaching institutions is also paid out of this fund. A certain amount of equipment and supplies are also provided the teaching center.

It is planned to make this a much more active program this year.

MATERNAL AND CHILD HEALTH SECTION—Robert J. Murphy, Jr., M.D., Pediatric Consultant

In the past year two additional premature infant centers have been opened. They are Rex Hospital in Raleigh and James Walker Memorial Hospital in Wilmington, making a total of six centers with a capacity of eighty-five premature beds. The increase in hospital costs has made it necessary for us to limit our financial participation in these centers to two-thirds of the centers' capacities. Despite this cut in our financial participation we have been interested in keeping the centers full to capacity and have accomplished this by enlisting the aid of the county welfare departments and the parents to participate in sharing the expenses. The six premature infant centers can only take care of a fraction of the premature load and are therefore reserved in most part for the smallest of the premature babies. We have tried to improve the medical care of premature babies in the local hospitals by the establishment of secondary centers. These centers are those who have a pediatrician on the staff and a nurse in charge who has been trained in premature care through a scholarship offered by this department. The hospitals are also loaned two Gordon Armstrong incubators. Four of these secondary centers have been set up in the past year at Elizabeth City, Rocky Mount, Concord and Goldsboro. Through cooperation with Duke University we have established a refresher course in premature

care for Public Health Nurses and hospital nurses. Thus, we have a training center within the State and do not have to send our trainees out of the State, as has been done previously. All of the counties in the State with the exception of 8 are equipped with premature infant carriers to transport these premature infants to the local hospitals or our centers. Since the start of the Program in 1948 we have financially aided 1300 prematurely born babies. We have seen a drop in the premature mortality and on increased interest in the premature problems among nurses and physicians, particularly pediatricians and obstetricians.

CRIPPLED CHILDREN'S SECTION— Ruth Council, R. N., Chief

During the summer of 1950, a camp for crippled children was an added activity to the program. The camp was located on the Pamlico River near Washington, N. C. and was operated for three weeks. The children were selected in the clinics by the orthopedists on the basis of those who would benefit most from the physical and social aspect. All of these were from the counties east of Raleigh. The counselors were selected through the State Home Demonstration Agent. Nurses from county health departments staggered their services and other workers were secured from nearby vicinities. Nutritionists from the State Board of Health were also present for supervision of planning of meals and kitchen activities. There were forty-two children who attended this camp during the summer. Funds were raised through local resources, in the counties from which the children came.

One of the nurses from this section was invited to attend the White House Conference which was held in Washington, December 3rd through December 7th. This conference, known as the Mid-Century White House Conference was based on personality development of children and youth through health, religion, recreation, and social service. There were approximately 4,000 delegates who attended.

Since the conference, the nurse has given a number of reports throughout the state in the interest of the follow-up program which includes the recommendations made the last day, December 7th.

During the year there were 307 clinics held throughout the state. Each of these clinics is within a distance of approximately fifty to sixty miles of every child. There were 5,501 new cases admitted to these clinics and 5,724 old cases re-examined during the clinic sessions. There were 720 admitted to general hospitals, 115 extensions authorized and 201 appliances purchased. As of January 1950 there were 20,831 on the state register. During the first three months of the year the funds were depleted to such an extent that the department was unable to take care of any cases except emergencies. However, it is definitely felt that none of the cases recommended for surgery were neglected because each child was referred to another agency when necessary.

On December 18th, we lost our Director, Dr. G. M. Cooper. He had started the North Carolina Crippled Children's Program in 1936, following the Social Security Act of 1935.

NUTRITION SECTION—Bertlyn Bosley, Ph.D., Chief

The work of the Nutrition Section, one of the more recent activities of the State Board of Health, is increasing in importance with each passing month as more knowledge is secured about the part food plays in some of the major health problems. Insistence upon proper use of foods to maintain good health has heretofore been urged for the younger generation. It is now recognized that it is of major importance for the aged and particularly for those with chronic diseases.

The Nutrition Section is staffed by well-trained nutritionists and dietitians who work with all official and some non-official agencies in the state. A larger number of these well-qualified workers is needed. It is hoped that the

number of field consultants can be increased to ten for service in the 100 counties of the state since no counties are now employing nutritionists. When this number is secured health departments, hospitals, institutions, clinics, communities and schools in all parts of the state will have an opportunity to receive the assistance which is being requested and is needed in bringing about better nutrition practices and consequently better health.

General

The amount and quality of work accomplished during 1950 was greater than in any previous year. This was due to an increase in the number of staff which was made possible, in part, by the appropriation of the 1949 Legislature to the Section. Funds in larger amounts are still greatly needed if the Section is to be able to give adequate attention to the many requests which are coming from all sections of the state.

The work was conducted through 53 county and city health departments, through state and county institutions, and through hospitals, communities, and schools.

Staff

As of the 31st of December the staff was as follows:

Dr. Bertlyn Bosley, Director
Miss Mary Brice Deaver, Principal Nutritionist
Miss Sallie J. Mooring, Consulting Dietitian
Miss Mabel B. Gladin, Consulting Dietitian
Miss Nina L. Corbett, Senior Nutritionist
Miss Gladys Strawn, Senior Nutritionist
Miss Winston Osborn, Senior Nutritionist

Miss Emma Clinkscales, Senior Nutritionist

Miss Carolyn Flewellen, Junior Nutritionist

Miss Marie Pfunder, Junior Nutritionist

Mrs. Rose Wischkaemper, Junior Nutritionist

There were three resignations: Miss Jana Jones, Principal Nutritionist, Mrs. P. C. Stott, Senior Nutritionist, and Miss Dorothy Kiely, Senior Nutritionist. The vacancies were filled by advancing Miss Deaver from Senior Nutritionist to Principal Nutritionist and by filling the other vacancies with new staff. Six members of the staff joined the Section in the latter half of the year, but being well trained, were soon assigned to their respective areas.

One scholarship candidate, Miss Pfunder, completed her studies at Simmons College in August and is now employed. Another scholarship candidate entered Simmons in September. She will be available for employment upon the completion of one year of study.

On December 31, 1950 the staff numbered eleven; on the corresponding date in 1949 the staff was eight. To do satisfactory work the minimum number should be not less than fourteen.

Activities

The plan of work remains as in preceding years. The state is divided into eight districts, with one field consultant in each of six of the districts. Each has an office in the local health department and coordinates her work with that of the health department staff in their regular program through the health departments and the schools. The dietitians give consultation service to the food service departments of state and county institutions as well as to the administrators of these institutions in renovating old kitchens or in planning for new kitchen construction and equipment. They also review all kitchen plans for new hospitals submitted to the Medical Care Commission. There are some special activities with other state agencies, in addition to the above work.

*Alamance, Alleghany, Ashe, Buncombe, Asheville, Burke, Caldwell, Caswell, Chatham, Cherokee, Concord, Duplin, Durham, Edgecombe, Rocky Mount, Greene, Guilford, Greensboro, High Point, Halifax, Haywood, Canton, Henderson, Hendersonville, Hoke, Iredell, Mecklenburg, Charlotte, Moore, New Hanover, Wilmington, Orange, Pender, Polk, Richmond, Hamlet, Rockingham, Robeson, Lumberton, Rockingham (county), Leaksville, Spray, Reidsville, Rutherford, Surry, Swain, Transylvania, Wake, Raleigh, Wayne, Goldsboro, Watauga, Boone.

Work With Nurses

Continuous staff education of nurses at state and local level, at quarterly conferences is provided. The subjects discussed depends upon the needs of the nurses in each area. Requests have been for basic nutrition information; food habits and nutrition practices in the state for adults and children; adequate diets for the low income group; special diets for those suffering from specific diseases; fifty-five of these conferences were held attended by 697 public health nurses.

Work in Clinics

The six district nutritionists are able to provide some service to the regular clinics held by some of the health departments in their districts. An attempt has been made to demonstrate the kind of nutrition instruction which nurses might give. These demonstrations and services have been given in prenatal, well-baby and pre-school clinics. Patients with special nutrition problems are referred by doctors or nurse for individual conferences. There were 21 group discussions and 1262 individual conferences held with those attending clinics.

Survey Work

Fundamental information which can be secured regarding the food habits of any group is essential for preparing a program for improvement of health through good nutrition practices. This information is used by health officers and the nurses in their work and by teachers for planning the nutrition instruction which is needed in the classroom. The procedure for collecting survey information has been described in reports of previous years. This past year surveys have been made in 39 schools; and 1053 children have been interviewed.

Work in Schools

Assistance in the School Health Program is one of the most frequent requests made of nutritionists. In response to these requests the consultant gives refresher courses to teachers. Afterwards she gives specific help to those teachers planning nutrition instruction for the students in their health

program. The number of teachers receiving this instruction during 1950 was 3550 in 115 schools. Of these 311 teachers requested help and included nutrition instruction as a part of their health program. Animal feeding experiments, using white rats and guinea pigs, were carried out in the upper grades by teachers who wished to make the best use of the instruction received.

Work of the Consulting Dietitians

Since the dietary consultant service began in 1948 there has been an increasing demand for this type of work and as a consequence a second dietitian was added to the staff in September 1950.

This service includes assistance in reviewing architects' plans for new kitchen construction or renovation in hospitals and state institutions and those constructed under the direction of the Medical Care Commission. In addition the dietitians assisted in the establishment of specifications for food service equipment for state institutions; in evaluating dietary practices in state and county institutions, when requested; in providing menu guides, and in cooperating in food handlers' courses. During the year the above service has been rendered to 52 state and county institutions, 1 orphanage, 4 colleges. Fifty-four sets of plans and 37 sets of specifications have been reviewed for the Medical Care Commission.

Special Work

(a) Joint work has been carried on with the Department of Public Welfare in respect to dietary needs of families receiving Aid to Dependent Children's Funds. This activity is still in progress.

(b) A demonstration project for well-child conferences has been set up co-operatively with the School of Public Health and the District Health Office of Orange-Person-Chatham-Lee Counties. It was requested that a nutritionist be assigned to this district so that a complete health department staff could work on the project. A nutritionist was secured in October. The work has been started.

(c) The cooperative demonstration

program with the School Lunch Program, begun in 1949, has been continued throughout the year.

(d) As in previous years consultants were made available for special summer school work relating to health. Nutritionists served as consultants for education workshops. One served as instructor in the Health Education Workshop at The North Carolina College.

One met with the Institute on Prematures held for nurses at North Carolina College. Another served as consultant for the Institute on Maternity, also, for Nurses at North Carolina College. One nutritionist served as consultant to the supervisors workshop at The Woman's College. A nutritionist also met with the Resource-Use Education Workshop at The North Carolina College. Another cooperated with the School-Health Coordinating Service at The University of North Carolina.

One nutritionist served as consultant in the lunchroom workshop in the Biltmore School for one week. She, also, served one week in the school lunchroom workshop in Cullowhee.

One nutritionist attended the Community Nutrition Institute held at Syracuse University for two weeks. This institute is held each year to provide postgraduate training for consultants from all over the United States.

One consulting dietitian and one nutritionist visited the Crippled Children's Summer Camp in Washington, North Carolina, to supervise the food service which had been planned by the Nutrition Section.

One consultant was on the program in the school lunch workshop at North Carolina College in Durham.

Four graduate students in Nutrition were assigned to North Carolina for field training; two were students from the Philippines assigned by the Public Health Service; two were from the University of Tennessee.

Conclusion

The activities of the Nutrition Section are increasing each year. Since nutrition is now considered to be of greater and greater importance in promoting

good health at all ages it is essential that more emphasis be placed on bringing about an understanding of the value of good nutrition practices for people of all ages. For many years nutrition has been accepted as being of great importance to the young; it is now realized that it is of even greater value to the aged and to the diseased.

The practice of good nutrition throughout life will help prevent some of the health problems now existing. To bring about these practices is the major problem of the Section. An adequate staff will enable the Section to aid in establishing better food practices, and thereby assure better health benefits to the people in all sections of North Carolina.

Cancer Section

In February, 1950, the State Board of Health was reorganized and the Division of Cancer Control was merged with other groups under the Division of Personal Health Services. Dr. G. M. Cooper was appointed Director of the new Division, and Dr. Mildred Schram continued to serve as Field Director of the Cancer Section until her resignation on August 22, 1950.

On March 7 the Gastric Cancer Detection Mobile which is equipped with a Schmidt-Helm camera and accompanying x-ray equipment began operation in Durham. The Schmidt-Helm camera in this Unit is one of five in the United States and is the first to ever be placed in a mobile unit. This phase of the cancer program is an experiment in screening apparently well people for stomach cancer. Seven 70 mm. films of the stomach and esophagus are made of each examinee and can be done in approximately seven minutes. Mr. Walter Lee Horton, Jr., who had received special training at Johns Hopkins University where the photofluorographic method originated was employed as Senior Technician to take and develop the films. Dr. W. W. Vaughan and Dr. Robert J. Reeves, Radiologists in Durham, study the films; and any person whose film shows any suspicious condition is referred to a practicing radiologist for

more complete study. The Mobile Unit operated in Durham until October when it was moved to Wilmington at the invitation of the New Hanover County Medical Society. During the year approximately 4,000 citizens were x-rayed under this experimental program. When 10,000 cases have been completed, an effort will be made to evaluate the effectiveness of this survey.

During the State Medical Society Meeting at Pinehurst in May, the Mobile Unit was on the grounds of the Carolina Hotel and open for inspection by the members of the Society. Also, an exhibit was set up in the building which included the continuous showing of the film "Breast: Self Examination". By special invitation, Dr. Schram gave a talk on "Method and Results in the State-County Cancer Centers" before the Section on Obstetrics and Gynecology.

During the annual meeting at Pinehurst the Cancer Committee of the State Medical Society went on record as approving the work of the State Board of Health Cancer Centers and recommended that county medical societies which did not have Cancer Centers affiliate with one or arrange to organize their own. (Adopted by House of Delegates May 1)

At the International Cancer Congress in Paris, July 17-21, Dr. Schram read a paper, "An Experiment in Mass Screening of a Population for Cancer."

The taking of cervical smears to be studied by the Papanicolaou method which was initiated in the Cancer Centers in 1949 as a part of a "screening" program was extended to four clinics. In these four Centers 4,514 smears were taken and studied. This phase of the program will be instituted in other Cancer Centers as it is requested by the local Staffs.

During 1950 approximately 2,500 cancer cases were reported to the State Board of Health by physicians, hospitals, and clinics in the State in accordance with the law which made cancer a reportable disease as of July 1, 1949.

Early in 1950 a program for the care of Indigent Cancer Patients was in-

augurated. The State Legislature in 1949 made this program possible by appropriating \$50,000 for each year of the biennium for this purpose. Due to the small amount of money available (no part of the Federal appropriation can be used for treatment of cancer), the plan has been limited to cases offering a hope for cure or arrest of the disease, and does not cover terminal cases. Hospitalization for any one person is limited to thirty day in any one year. The participating hospitals are paid on the basis of Cost Analysis Statements submitted to the State Board of Health. Surgery and x-ray and radium therapy are paid for in accordance with a fee schedule which was prepared by a Subcommittee of the Cancer Committee of the North Carolina State Medical Society. Prior to December 31, 335 cancer patients were treated under this program at a cost of approximately \$49,000.

The operation of the Cancer Detection and Diagnostic - Management Centers continued under the original policies during the year. Two new Centers were opened, bringing the total to be organized to eleven. The Edgecombe-Nash Counties Cancer Center in Rocky Mount began operation on January 25, and the Wayne County Cancer Center was opened in Goldsboro on May 12.

The Forsyth County Cancer Center which was opened on July 21, 1948, in Winston-Salem ceased operation on June 30, as the Forsyth County Medical Society decided to carry on its cancer work in accordance with the Hillsdale Plan.

The Cancer Centers operating during 1950 were:

Detection and Diagnostic-Management
 Buncombe County Cancer Center
 Asheville, North Carolina
 Durham-Orange Counties Cancer Center
 Durham, North Carolina
 Edgecombe-Nash Counties Cancer Center
 Rocky Mount, North Carolina
 Forsyth County Cancer Center
 Winston-Salem, North Carolina
 (closed June 30, 1950)
 Guilford County Cancer Center
 Greensboro, North Carolina

Lenoir County Cancer Center
Kinston, North Carolina
New Hanover County Cancer Center
Wilmington, North Carolina
Wayne County Cancer Center
Goldsboro, North Carolina

Detection Centers

Jackson-Swain Counties Cancer Center
Sylva, North Carolina
Northeastern Carolina Cancer Center
Elizabeth City, North Carolina
Wilkes-Alleghany Counties Cancer
Center
Wilkesboro, North Carolina

The Centers meet once a week for a two-hour period with the exception of one Detection Center which is held twice monthly. In the Major Centers (Detection & Diagnostic-Management) the Diagnostic clinic is held following the Detection clinic.

During 1950, 472 clinic sessions were held, with a total of 11,775 examinations being made in the Detection clinics. Of this number 4,579 examinees were referred directly from the Detection Centers to their personal physicians for treatment of conditions found in the Centers. A total of 3,287 examinees were referred to the Diagnostic-Management Centers for consultation by the Diagnostic Staff of the clinic and then to their physicians for treatment, making a total of 7,866 individuals who were referred to their physicians from the clinics. A total of 311 cancers were seen in the clinics, 259 being diagnosed by the Center Staffs. The remaining 52 cancers had been diagnosed as such before the examinee visited the clinic. Of these cancers 232 reexaminations were made. The Cancer Section of the State Board of Health received 579 pathologic reports on Cancer Center examinees on whom biopsies were taken to determine the presence of cancer. It is interesting to note that approximately 1 of every 38 examinees seen proved cancerous.

During the year a representative of the American College of Surgeons visited each of the State-County Cancer Centers in North Carolina and after a thorough investigation of each recom-

mended to his board that they be considered for approval.

LOCAL HEALTH DIVISION—C. C. Applewhite, M.D., Director

On February 1, 1950, the State Board of Health transferred the section on venereal disease control from this division to the Division of Epidemiology, and placed in this division a section on mental health and the State Board of Health portion of the school health program.

During the year there was only one medical officer in this division, the Director, who was responsible for the general administrative supervision of all the sections in this division along with the administrative duties incident to the successful operation of all of the full-time local health departments within the state.

During the past year the director has focused his attention on the program designed to improve the domiciliary facilities of the personnel in the local health departments by working closely with the Medical Care Commission and the county commissioners in the state. During the year contracts were let for eleven local health centers. At present the county commissioners of the same number of counties have indicated a keen interest in this program.

During the year the director has visited a good percentage of the local health departments where an opportunity was afforded to discuss with the local personnel the important role which they are playing in the total public health program. An honest effort is being made to cause all the personnel in the local health departments to feel that they are an integral and important part of the state health organization and that the proper execution of the duties assigned to each one will aid and abet the on-going of the public health movement in North Carolina.

At the end of the calendar year 1950, more than 4,000,000 men, women and children in the one hundred counties of North Carolina were receiving some type of local health service in the sixty-seven

organized health departments, forty of which were county units, twenty-four district units, and three city health departments. In order to supply medical supervision to all of the counties, it has been necessary to attach a number of the smaller counties to larger counties having the services of a full-time health officer. In practically all instances this procedure has been very satisfactory.

As of December 31, 1950, there were 1,083 full-time budgeted positions in

local health departments, with 59 vacancies. Of this number ten were full-time health officer vacancies and twenty vacancies were in the public health nursing personnel. This shortage of qualified personnel, particularly physicians and nurses, continues to be a major problem.

Training: During 1950 the following personnel received, or were in the process of receiving special training under the varied programs sponsored by the State Board of Health:

Health Officers—scholarships University of North Carolina	3
Health Officers—orientation in various field training centers	4
Health Officers—attending radiological health conference	3
Health Officer—attending Duke Psychosomatic Clinic	1
Health Officers Division Directors, and other public health personnel attending Mental Health Seminar	29
Physician on staff State Board of Health—tuition at University	1
Public Health Nurses—scholarships	12
Public Health Nurses—orientation at various field training centers	40
Public Health Nurses—attending special Extension Courses	27
Public Health Nurses—taking special quarter's work	20
Public Health Nurses—special courses in tuberculosis, geriatrics, cancer control, mental health, child growth and development, premature infant care and maternity, cardiovascular diseases	157
Public Health Nurses—attending Psychosomatic Clinic, Duke University ..	20
Hospital Nurses—course in care of premature infants	2
Sanitary Engineers—scholarships University of North Carolina	2
Sanitarians—special 8-week courses at various field training centers	36
Sanitarians and Engineers—special Milk courses	27
Sanitarians—course in Insect and Rodent control	36
V. D. Investigators—special training	8
P. H. Educators—scholarships	6
Nutritionist—scholarships	1
Lab. technician—scholarships	1
Bacteriologist—scholarships	1
Mental Health Trainees—scholarships	3
Personnel in various categories of public health attending workshops, etc. ..	9
Industrial Hygiene Engineers—special courses	3
Chief Industrial Hygiene Engineer—special course at Radiological Monitor School, Chicago	1
Apprentice Trainees—assigned to local health departments:	
Health Officers	2
Public Health Nurses	8
Health Educator	1
Sanitarians and P. H. Engineers	5
Total	469

In addition to the routine services of the Field Representatives such as consultation to the local health units in regard to records and reports, reviewing and editing reports to and from the State Board of Health, it is felt that progress has been made in three respects.

As was stated in the conjoint report for 1949, a new report form was to be used by the local health units beginning January 1, 1950. This annual report was a drastic change from the quarterly statistical. The Field Representatives spent a considerable amount of time reaching every department in the state to give interpretation and explanation of items and assistance in compilation of data. One of the strong points of the new report is that the cooperation of the entire staff is needed for its completion, and the interpretation of the data is of interest to all the personnel. For this reason, and also to expedite coverage of the entire state, the new report was discussed in many places at general staff meetings. This report form is being used in 1950 and 1951 on a trial basis. It is planned to have a committee composed primarily of local personnel to study suggestions for changes and additions, and revamp the trial form into one that will be satisfactory for several years.

During the summer of 1950, the Orange-Person-Chatham-Lee District Health Department asked the Records Analyst of the Department of Field Training of the School of Public Health and the Field Representatives of the Local Health Division to assist in developing records which would simplify the present forms and procedures used in recording their activities. After several conferences with the medical, nursing, and clerical staff, three experimental forms were designed and procedures outlined. An experiment in the use of these was begun in September, 1950, and will continue into the spring of 1951. From this it is hoped that some recommendations may be made for simplification of records throughout the state.

For some time in-service training for

clerks has been contemplated but the fiscal year 1950-51 is the first time that funds have been included in the budget for this purpose. This followed the employment of Miss Alpha Kenny, Educational Director, Public Health Records and Statistics in the Department of Field Training in the School of Public Health, who will be mainly responsible for this training. Having money and personnel for the first time, definite plans have been made for two two-weeks' courses in the spring of 1951.

PUBLIC HEALTH NURSING SECTION—Amy L. Fisher, R.N., Chief

Beginning in January, 1950, a Quarter's Training Program for Selected Registered Nurses in Public Health was given to twenty nurses in order to improve their service and make them eligible for reclassification as Junior Public Health Nurse. This was a cooperative project with the Department of Field Training, School of Public Health, University of North Carolina, and was under the guidance of Miss Evelyn Johnson, Education Director. All of these nurses have passed the Merit Examination and are now working as Junior Public Health Nurses.

From January until September, five public health nurses made consultant visits to local health departments. In September Miss Dorothy Boone was granted leave of absence to take the Mental Health Course at the University of Minnesota.

Continued emphasis has been placed on the development of the Premature Infant Program with Miss Mabel Patton assigned practically full time to this program. School Health Service was given special emphasis because of the funds available for correction of defects and also because of some regional planning conferences (which are described under School Health Coordinating Service.)

On April 10, 1950, Miss Florence Burnett was employed as Public Health Nursing Consultant, Psychosomatic Clinic, Duke Hospital. Her salary is paid by the State Board of Health from Men-

tal Health funds. Miss Burnett is now planning the program of Training in Mental Health for Public Health Nurses. In addition to the four week-end groups, a ten-day course is offered for nurses from the distant parts of the state. Miss Burnett is also available on request through the State Board of Health for staff conferences in departments where one of the nurses has been to Duke for this experience.

In the interest of recruitment of public health nurses, an apprenticeship plan has been started whereby nurses may be given experience in field training centers. Three nurses were granted stipends on this program early in the year, two of them were granted scholarships for the Program of Study in Public Health Nursing in September. Five additional nurses began apprenticeship experience in the fall.

HEALTH EDUCATION SECTION— Elizabeth Lovell, Chief

As in years past, the keynote in public health education in 1950 was the recruitment, training and employment of health educators on the local level. At the present time, twenty-six trained public health educators are working in local health departments in North Carolina. Two of the health educators were employed in 1940 to develop a demonstration in venereal disease investigation and general health education. These two health educators were employed with USPHS funds, and in 1950 the local health departments assumed the responsibility for the salaries.

Ruth Thompson was employed as Supervisor of Public Health Education and loaned to Wake County Health Department on a part-time basis to develop a local health education program and to supervise the local health educators in the eastern section of North Carolina. A public health educator, jointly employed by the State Board of Health and Appalachian State Teachers College, has continued her work as Professor of Health Education, Appalachian State Teachers College, as well as work-

ing part-time with the district health department in Boone.

Two public health educators have continued working with the Tuberculosis Section of the State Board of Health. Even though the time allotted for the educational program preceding the mass X-ray has been limited, these workers have done an excellent job of preparing communities for the mass surveys.

In 1950 ten public health educators who received their training at the University of North Carolina and North Carolina College were employed in local health departments or colleges in North Carolina.

The State Board of Health awarded five training scholarships in September, 1950. The first public health education apprentice is now receiving her graduate training at North Carolina College. One apprenticeship trainee is receiving his training at Wake County Health Department at the present time.

The local health educators carried on a planned recruitment program through the colleges and local communities and screened the applicants for scholarship. This year for the first time, a deliberate effort was made by the local health educators to interview the references given by each applicant. In addition, each applicant was asked to submit an autobiography as a part of the application for scholarship.

In 1950 the local public health educators have assisted public health personnel in developing health education programs to meet the needs in local communities. These programs include such activities as organization of health councils; foodhandlers and milkhandlers courses; adult study courses; and planning health programs with civic clubs, home demonstration clubs, voluntary health agencies and other groups.

With the increased emphasis on the school health program, the local health educators have continued emphasis on the organization of school health councils; in-service-training programs for teachers, providing materials to schools; assisting in planning school health programs; and working with Parent-Tea-

cher Association groups on health education programs.

The health educators have assisted in preparing, producing and distributing pamphlets, posters and exhibits and have utilized films, radio programs and newspaper articles in the local health education programs.

In July and December statewide conferences for health educators were held at the State Board of Health in Raleigh. In addition, the local health educators attended the March Working Conference in Chapel Hill, and a school health conference sponsored by the School Health Coordinating Service in October.

In two areas of North Carolina the health educators participated in the meetings of District Public Health Associations.

The Supervisor of Public Health Education attended the workshop on "Supervision" conducted by Charlotte Towle at the University of North Carolina.

Field visits were made to local health educators by the Supervisor and Chief of Public Health Education.

The health educators attended and participated in the meetings of the N. C. Public Health Association. A number of the health educators attended the Southern Branch APHA meeting in Birmingham. Several of the health educators attended and participated in the American Public Health Association meeting in Saint Louis.

Members of the Public Health Education Section Staff have taken an active part in committee work of state, regional and national organizations concerned with health education.

The Public Health Education Section worked with other Divisions of the State Board of Health and allied agencies and organizations on health education materials; orientation and training courses for personnel and in planning and developing health education programs.

In cooperation with North Carolina College, exhibits were prepared for Southern Branch APHA and the North Carolina Medical Society meeting. An exhibit was prepared in cooperation with Health Publications Institute for the North Carolina Public Health Associa-

tion. An exhibit was developed for the N. C. State Fair in cooperation with the Cancer Society and the Cancer Section of the State Board of Health.

Two special activities of note have been developed during the year. A series of study courses on health subjects is being conducted for the prisoners at Women's Prison. With the increased activity in civil defense, the Public Health Education Section has been assisting in developing the health services program of civil defense in Asheville.

Upon request, the section has assisted local health departments in planning and developing health education programs in the counties where there are no local health educators.

MENTAL HEALTH SECTION—M. Frances Johnson, Acting Chief

In July, 1950, Miss Dorothea L. Dolan, Psychiatric Social Work Consultant, USPHS, was transferred to Chicago, Illinois, Region 5. The staff now consists of Miss M. Frances Johnson, Chief Psychiatric Social Worker; Miss Alma Lee Draper, Secretary; and Mrs. Denna-celle Kiger, Librarian. The Mental Health Consultants to act in lieu of a staff psychiatrist are: Dr. J. W. R. Norton, State Health Office; Dr. C. C. Applewhite, Director, Local Health Division; Dr. Mabel Ross, Region 3, USPHS; Dr. David A. Young, Spt. North Carolina Hospitals Board of Control; Dr. Maurice H. Greenhill, Associate Director of Neuropsychiatry, Duke University School of Medicine; and Dr. Lloyd J. Thompson, Professor, Bowman Gray School of Medicine.

The following clinics provide services in local communities. Approximately 3,000 cases were handled and 2,069 were closed during the year.

Mental Hygiene Clinics—Asheville, Charlotte, Raleigh, and Mount Airy

Child Guidance Clinics—Durham, Duke Hospital

Psychosomatic Clinic—Duke Hospital
Neuropsychiatric Clinics—Baptist Hospital in Winston-Salem

Charlotte City Health Department and Duke Psychosomatic Clinic each

have a Mental Health Nurse and Winston-Salem City Schools have a Social Worker. The Surry County Clinic at Mount Airy and the Durham Child Guidance Clinic are under the auspices of the local health department. This plan seems to be working very nicely and it is hoped that in the near future, all clinics will be under the direction of the local health officer, thereby decentralizing administration of mental health funds.

Mental health stipends in psychiatric social work were awarded to Miss Martha Faison who attended Tulane University and is now employed at the State Hospital and Mr. Sidney Talisman who attended the New York School of Social Work. A suitable assignment has not been found for Mr. Talisman since the completion of his training.

A Professional Circulating Library is available to all professional people. This contains approximately 320 books on psychiatry and mental health. Two hundred and fifty were circulated this year. **Pierre the Pelican** messages, a series of twelve monthly printed letters to parents of first-born children, are distributed through the state—24,180 series being issued this year. Services of the psychiatric social worker are available, and many field trips were made in this period in addition to a heavy correspondence. A set of three mental health posters were issued to health departments, pediatricians and other agencies throughout the state. Films for lay education and professional staff training were lent on request. Pamphlets and reprints were issued to key people throughout the state. An institute on mental health was held at Wrightsville Beach in June. This was very successful, being attended by health officers, psychiatrists, resource people, a public health educator, a public health nurse, a clinic psychologist, a mental health nurse, and two psychiatric social workers.

Recruitment efforts are continued in the hope that it may become possible to make available to every county not only mental health training opportunities and mental health informational

materials, but also mental hygiene clinic services which are needed in a well-balanced program. Our objective is to prevent mental illness and promote positive mental health of all North Carolinians.

SCHOOL HEALTH COORDINATING SERVICE—Charles E. Spencer Coordinator

The North Carolina School Health Coordinating Service which is sponsored by the State Department of Public Instruction and the State Board of Health, officially represented both agencies in the school health and physical education programs in North Carolina during the period January 1, 1950, to December 31, 1950.

In carrying out this responsibility, the staff members worked with school superintendents, principals, and teachers, with public health department personnel, and with representatives of other agencies interested in the health of children, youth and adults.

Major Activities of the Year— Curriculum Study and Improvement

Project Continued.

The health and physical education curriculum project, described in detail in the 1940 Annual Report, was continued during 1950. By December 31, 1950, the Physical Education Bulletin was completed except for editing, proof reading and writing directions to printers. During the year, tentative sections of the Health Guide were completed and distributed to many county and city schools for experimental use. Recommendations for revision have been made, many of which will be incorporated in the new material.

Administration and Supervision of the School Health Fund

The School Health Coordinating Service continued to represent the State Department of Public Instruction and the State Board of Health in the administration and supervision of the school health program, including planning and administering the expenditure

of school health funds in the amount of \$550,000 annually, appropriated by the 1949 General Assembly to be allocated by the State Board of Education as grants in aid to city and county school administrative units. The plan for allocating the funds the first year of the biennium July 1, 1949 to June 30, 1950, was continued the second year of the biennium, namely:

A. Each county and city school administrative unit was allotted an amount equal to 50¢ per pupil based on the Average Daily Membership for the first seven months of the previous school year.

B. In addition, the sum of \$1,000 was allotted to each county regardless of size. Each school administrative unit within the county receives a portion of the \$1,000 allotment based on its percentage of the total students in the county.

The policies approved by the State Board of Health and the State Board of Education in 1949, governing the expenditure of these funds, were continued for the second year of the biennium.

Also, the State Board of Health continued the plan of earmarking an amount equal to 40¢ per pupil for school health work.

Expenditures of State Board of Education school health funds for the period July 1, 1940 to June 30, 1950, were as indicated below:

Salaries: Health Educators	\$ 25,809.29
Nurses	55,540.54
Physicians	8,399.22
Technicians	10,111.91
Travel: Health Educators	3,156.23
Nurses	12,682.59
Physicians	251.10
Technicians	1,981.76
Clinic Fees	46,554.57
Correction of Defects	272,033.07
Supplies	25,078.04
Equipment	55,983.11
In-service Training	3,295.10
	<hr/>
	\$520,876.44

State and Local Planning for School Health

A. A state Advisory School Health

Committee was approved by the State Health Officer and the State Superintendent of Public Instruction. The functions of the committee are to study the over-all school health program and to make recommendations to the State Health Officer and State Superintendent. The Committee is composed of the following members:

Dr. Clyde A. Erwin, State Superintendent of Public Instruction

Dr. J. W. R. Norton, State Health Officer

Dr. C. C. Applewhite, Local Health Administration, State Board of Health, Raleigh, N. C.

Mr. J. E. Miller, State Department of Public Instruction, Raleigh, N. C.

Dr. Clyde Minges, State Dental Society, Rocky Mount, N. C.

Dr. Roscoe McMillan, State Medical Society, Red Springs, N. C.

Dr. J. Henry Highsmith, Division of Instructional Service, State Department of Public Instruction, Raleigh, N. C.

Mrs. Anne Maley, Lunchroom Program, State Department of Public Instruction, Raleigh, N. C.

Miss Catherine Dennis, Division of Instructional Service, State Department of Public Instruction, Raleigh, N. C.

Miss Ada McRacken, State Department of Public Welfare, Raleigh, N. C.

Dr. E. A. Branch, Division of Oral Hygiene, State Board of Health

Mr. John L. Cameron, Division of School Buildings and Surveys, State Department of Public Instruction, Raleigh, N. C.

Mr. Robert L. Caviness, Division of Sanitary Engineering, State Board of Health, Raleigh, N. C.

Miss Amy L. Fisher, Supervisor of Nurses, State Board of Health

Mrs. H. A. Helms, 1001 W. Peace Street, Raleigh, N. C. (P.T.A.)

Mr. Felix Barker, Division of Special Education, State Department of Public Instruction, Raleigh, N. C.

Miss Frances Johnson, Mental Health Authority, State Board of Health

Miss Elizabeth Lovell, Local Health Administration, State Board of Health, Raleigh, N. C.

Dr. Bertlyn Bosley, Nutrition Section,
State Board of Health

Mr. Charles E. Spencer, Director, School
Health Coordinating Service

Mrs. Annie Ray Moore, Health Educa-
tor, School Health Coordinating Ser-
vice.

B. Ten Regional Planning Confer-
ences. The staff of the School Health
Coordinating Service, with the coopera-
tion of other divisions of the State De-
partment of Public Instruction and the
State Board of Health, the Welfare De-
partment, the Parent-Teachers Associa-
tion and the State Medical and Dental
Societies conducted ten Regional School
Health Conferences, to promote and as-
sist with planning for better school
health programs on the local level.
Many planning conferences in individual
counties were held after the regional
meetings upon request of local health
officer and school superintendent.

Health Education Workshop

A Health Education Workshop was
sponsored by the School Health Coordi-
nating Service and the University of
North Carolina at Chapel Hill from June
13 to July 20, 1950.

The purpose of the Workshop was to
provide opportunities for teachers, school
administrators and health workers (1)
to study the major health problems of
children and adults, (2) to assist them
in planning functional programs to meet
the needs of their own particular school-
community situations, and (3) to gain
basic information and a mastery of
skills and techniques essential to the
best implementation of such programs.

Six semester hours of graduate or
undergraduate credit was given by the
University to those who completed the
work.

Financial aid in the amount of \$750
was given by the North Carolina Divi-
sion of the American Cancer Society to
the University of North Carolina to be
used toward general expenses of the
Workshop. Local Tuberculosis Associa-
tion provided scholarships to individual
participants from their respective coun-
ties and cities. The State Tuberculosis
Association made a grant of \$250.00 for

general expenses of the Workshop.

Other Service of the Staff of the School Health Coordinating Service

State planning and promotional work
and services to school and health de-
partment personnel through consulta-
tive services, field visits, planning and
carrying on in-service education, pro-
duction of certain materials, reviewing
and recommending use of materials, lo-
cate and recommend use of local, state
and national resources, evaluative pro-
cedures, joint state conferences and
committees, state and national organ-
izations.

A. Health Services. This involves
working with school and health depart-
ment personnel in teacher screening and
observation of children with obvious de-
viations from normal. Audiometer test-
ing, physical and psychological exami-
nations are done and follow-up work
with parents carried on to get needed
corrections of defects. Consultant and
promotional and advisory services are
also given to promote better records and
reports, and a promotion of activities is
directed towards making educational ex-
periences out of health services.

B. Health Instruction. This involves
working with teachers and administra-
tors in identifying and solving child
health needs through experiences direct-
ed towards improvement of habits, at-
titudes and knowledges. It involves
directing work with teachers in prepara-
tion of materials of instruction and
evaluation in such areas as mental hy-
giene, community health, family life
education, communicable disease control
and sanitation, safety and personal
health problems such as nutrition, den-
tal hygiene, rest and sleep, and care of
the eye, ear, nose and throat and edu-
cation with reference to harmful effects
of alcohol and narcotics.

C. Healthful School Living. "The En-
vironmental Aspects of Health." This
involves assisting administrators in
selecting and improving environmental
facilities and in the care and use of
such facilities. It also involves work with
administrators in the organization of
the total school health program to pre-

vent over-crowding, over-work, or an unbalanced program.

D. Physical Education. This involves giving assistance to administrators in organization, scheduling, selecting and care of facilities and equipment; personnel; and the program of physical education including the required credit, instruction, recreation activities, intramural activities and varsity athletics.

E. Mental Hygiene. The consultant in mental hygiene worked with school and health departments to make mental hygiene an integral part of the entire school health program. Mental hygiene was emphasized from the position approached as:

1. An area in health instruction as shown in 5B above.
2. A sensible way of living for teachers, pupils and parents in whatever activity they are engaged.

Cooperation and Coordination

In carrying on the above listed activities, the School Health Coordinating Service was particularly aware of its responsibilities to:

A. Cooperate with other divisions of the State Health and Education Departments and with other agencies and organizations in worthwhile school health projects.

B. Work toward coordination of all school health activities to avoid duplication and omission of services.

Demonstration Work in Negro Schools

A. The Negro staff members worked extensively in the following counties:

Hoke County
Randolph County
Moore County
Granville County
Asheville City

B. The Negro staff assisted with the Health Education Workshop for teachers at North Carolina College at Durham. They also participated in the Family Life Education Workshop held at the same institution.

EPIDEMIOLOGY DIVISION— C. P. Stevick, M.D., Director

Since February 1, 1950, the Division of Epidemiology has been comprised of the

following sections: Acute Communicable Disease Control, Tuberculosis Control, Venereal Disease Control, Public Health Statistics, Industrial Hygiene, and Accident Prevention. A separate report follows for each of these Sections.

Acute Communicable Disease Control

The duties of the Chief of this Section are being performed by the Division Director. These consist of the analysis of morbidity data, consultation with local health departments, investigation of communicable disease problems in the field, preparation of educational materials, and general administration.

Two communicable diseases reached low records in 1950, according to morbidity reports. These were lymphogranuloma venereum with a total of 91 cases, and malaria 35 cases. In addition, there were no smallpox cases reported for the second consecutive year, and diphtheria reports were fewer in number than in any year except 1948.

Record high totals were established by amebic dysentery with 132 reports, encephalitis with 9 reports, and tuberculosis with 3,653. Sufficient facilities have not been available to adequately investigate the first two of these problems. The amebiasis increase is believed to be due merely to the increased recognition of endemic cases. Encephalitis is a problem that needs careful observation in coming months. The wide extent of certain types of this disease in the far east and other parts of the world and the known existence of certain insect vectors in this and other states represent a definite hazard. Steps are being taken to more fully utilize newly developed virus identification facilities of the United States Public Health Service. Tuberculosis case-finding by mass x-ray survey techniques has been at a high level for the past several years. The ratio of cases per death in 1948 was 4.2, in 1949 3.6, and, according to provisional death totals, for 1950 it was 4.7. This appears to indicate that there has been no real increase in tuberculosis incidence; however, the possibility cannot be completely discounted that an increase in cases may have occurred re-

cently without sufficient time having elapsed for the deaths to have increased proportionately.

Substantial improvement was made in the reported incidence of the following diseases: gonorrhea, syphilis, and murine typhus fever. Gonorrhea reached a record high in 1949 with 16,173 reports. The 1950 total of 14,930 reports is slightly lower than the 1948 total and may be significant in view of the increased case-finding efforts being made throughout the state. Syphilis reports are at the lowest level since 1933 and the decline has now been continuous since 1939 except for one post-war year. Early syphilis declined approximately 40% and late syphilis 20% in 1950 as compared to 1949. Typhus fever has declined without interruption from a high of 236 reports in 1944 to 12 in 1950; DDT dusting in endemic areas apparently has been highly effective in achieving this result.

Poliomyelitis reports total 756. These cases were widely distributed throughout the state so that no clear cut epidemic focus appeared as in other years having an equally high attack rate.

Whooping cough cases, which had reached a record low number in 1949, were more than doubled in 1950. The total of 3,552 cases is larger than was reported in the preceding four years, and indicates a need for renewed emphasis on pertussis immunization of infants.

The change in incidence of other communicable diseases is not noteworthy. The animal diseases of importance to humans, such as tularemia, undulant fever, and Rocky Mountain spotted fever, have remained at approximately the same level. Resolutions have been adopted recently by the North Carolina Veterinary Medical Association and certain local veterinarian associations recommending that a veterinarian trained in public health be added to the staff of the State Board of Health to assist in the control of those animal diseases of importance to public health. The need for this service has been emphasized, particularly with respect to rabies.

The typhoid carrier register maintained by this Section held the names

of 76 individuals as of the close of the year 1950 as compared to 78 the year previous.

TUBERCULOSIS CONTROL SECTION —William A. Smith, M.D., Chief

The principal function of the Tuberculosis Section is case-finding by community-wide and special x-ray surveys.

Home follow-up and immediate follow-up of cases found during mass surveys is continually emphasized to health departments. To that end, the Section maintains follow-up personnel in the county or district after the departure of the mass x-ray personnel. The duty of this personnel is to reexamine those persons who were definitely or tentatively diagnosed as having tuberculosis during the regular survey. The final results of follow-up activities in fourteen county-community surveys made in 1950 showed that 92% of those persons who require reexamination responded by returning to the Health Department for such examination.

Health education and publicity in connection particularly with community-wide surveys is another responsibility. This work is performed by two health educators. This health education begins prior to the beginning of a survey and continues during the survey.

Other responsibilities and activities include liaison with:

- State institutions (for better case-finding)

- The Director, State Sanatoria

- State Tuberculosis Association

- N. C. Division of Vocational Rehabilitation

- State Department of Public Welfare
- Local health departments (for case-finding and other measures pertaining to tuberculosis control)

- Cooperation with Duke University Hospital (pertaining to x-ray of hospital admissions and other persons by furnishing the hospital a General Electric 4 x 5 x-ray apparatus)

- Interpretation of 4 x 5 film for one county

- Furnishing funds to purchase x-ray

equipment for county health departments

Allotment of \$75,000 to counties to be used in tuberculosis control

On occasion, furnishing minor equipment on loan to county health departments

Personnel and Equipment

There are twenty-two persons employed by the Section. Personnel consists of two doctors, two health educators (one white and one Negro, both of whom are female), one part-time consultant nurse, one chief clerk, ten x-ray technicians, and six other persons.

Equipments consists of:

Eight mobile x-ray units with tractors
One portable 14 x 17 Westinghouse unit

One generator

One 4 x 5 x-ray unit located in the

Reviewing Section at Duke Hospital

One Chevrolet carry-all.

Activities during 1950

Community-wide surveys were completed in health department jurisdictions named below:

Hertford-Gates

Washington-Tyrrell

Lenoir-Jones

Onslow-Pender

Robeson

Columbus

Bladen

Brunswick

Nash

Franklin

Wilson

Special surveys were conducted in thirty-eight communities and included state institutions, colleges and schools, the general public, industry, and special groups selected by health officers. Some schools, colleges, and state institutions were surveyed by special request. These are generally routinely surveyed during mass surveys of an area. Those surveyed by special request in 1950 were:

Schools and Colleges:

Wake Forest College.....Wake Forest

Washington High School.....Raleigh

Eastern Carolina Teachers College

Greenville

Greene County High School

Snow Hill

Johnston County Teachers.....Smithfield

Methodist Orphanage.....Raleigh

Union County Teachers.....Monroe

State College.....Raleigh

University of North Carolina

Chapel Hill

Caswell County Teachers.....Yanceyville

City of Rocky Mount Schools

Rocky Mount

Peace Institute.....Raleigh

Meredith College.....Raleigh

Shaw University.....Raleigh

Saint Augustine College.....Raleigh

State Institutions:

State School for Blind.....Raleigh

State Hospital.....Goldsboro

State Hospital.....Raleigh

Women's Prison.....Raleigh

Number of X-Ray Plates Made

During the year over 300,000 x-ray plates were made. The type and number taken is listed below:

70 mm. plates made

during mass and

special surveys 298,300

4 x 5 plates made

at Duke University

Hospital.....15,246

14 x 17 plates made

during follow-

up clinics.....9,000 (estimated)

322,546

Findings

Findings are recorded according to rate per 10,000 persons examined and include community-wide surveys only in which follow-up activities were carried out by our personnel. Persons who were reexamined represented 92% of those who actually were in need of reexamination and our figures are based on this group.

During 1950, 15 counties were surveyed and the results tabulated below include 14 of these counties. The survey in Wilson County was completed December 23 and the final results have not been tabulated as of this date.

Findings are:

Rate per 10,000 persons examined

Pulmonary scars.....144.6

Minimal, moderate, and far advanced tuberculosis	34.2
Suspected tuberculosis	25.0
Diagnosis reserved	16.0
Cardiovascular	63.3

VENEREAL DISEASE CONTROL SECTION—Maurice Kamp, M.D., Chief

Satisfactory progress in venereal disease control, especially syphilis, has been made during 1950. There has been a gratifying drop in the early or infectious cases of syphilis reported. The decrease in reported cases of congenital syphilis is not as marked. Morbidity data and other pertinent figures reveal the following:

I. Cases reported for the first time:

	Syphilis	Gonorrhea
1949	6,699	16,177
1950	5,168	14,934

II. A comparative study over a three-year period of primary, secondary, and congenital cases showing the percentage they comprise of the total cases reported:

Year	Number Cases Primary and Secondary	Percent Secondary	Number Con- genital	Per Cent Con- genital
1949	2,093	31.2%	416	6.6%
1950	1,196	23.1	346	6.6

III. Total admissions to the two Venereal Disease Centers at Durham and Charlotte:

1949	6,791
1950	5,232

Total admissions in both Centers since opening in 1943, through December 31, 1950: 53,413.

During the report period the Section continued a special case-finding project in cooperation with the United States Public Health Service whereby trained venereal disease investigators were employed by the State Board of Health and assigned to local health departments in areas of high incidence. At the end of 1950 there were 20 of these individuals serving 41 counties. In 18 other counties there were locally employed investigators. In those counties not having investigators public health nurses provided similar service. The functions of this group included careful interviewing of all new patients by using special in-

terviewing techniques and the investigation of the contacts named by the patients.

The following table illustrates the effectiveness of this program and at the same time emphasizes the need for continuation of the control program in order not only to make possible a further reduction in the incidence of syphilis but also to prevent an actual increase in incidence from the reservoir of undetected cases. The extent of this reservoir is probably considerable, in view of the increase in infected contacts found by means of increased effort.

A comparative three-months study of epidemiological activity is shown below:

Year	Infections Number of Patients	Syphilis Contacts Named per Patient	Number of Contacts	Number In- fected
1949	1,080	.79	853	297
1950	777	3.01	2,339	748

This clearly shows that it is possible to secure a great number of infected people, even though the number of patients in a comparative period decreases. Contacts interviewing and investigation of contacts has been emphasized during the calendar year. Although it is more difficult to find infected people, this study shows that they do exist.

Increased effort was made in cooperation with the prison system. Because of excellent cooperation on the part of the chief prison physician, our local investigators were permitted to interview infected inmates in the 92 state-operated prison installations. In addition, the prison-wide adoption of penicillin therapy for the treatment of syphilis effected better over-all control, including that of short-term prisoners.

Due to the decline in the number of cases of syphilis and the consequent rise in cost per patient day, the Rapid Treatment Center at Charlotte was closed December 31, 1950. The encouragement of the local health departments and private physicians to treat cases of venereal disease locally also contributed to the decreased number of Rapid Treatment Center admissions. Gonorrhea is treated almost exclusively on a local basis by private physicians and local health departments with the one injection treatment of penicillin.

A primary objective of the State Board of Health, so far as venereal disease control is concerned, is for the management of venereal disease by the private physicians and the local health departments. To implement this objective the development of adequate local health department facilities has been encouraged. To provide proper technical background, refresher courses for physicians, health officers, public health and graduate nurses have been given during the year. Intensification of this program has occurred during the last half of 1950 so that classes are being held two to three times a month for the various professional groups. The response to these short-term courses, averaging three days in duration, has been very good. For this reason, this phase of the program will be continued indefinitely and will include courses for Negro physicians and nurses.

The clinical facilities of the Venereal Disease Center at Durham are in constant use by the Syphilology Department of Duke University Medical School to teach the medical students the various aspects of venereal disease management. The School of Public Health at Chapel Hill, too, utilizes some phases of the program at this Center.

It is planned to emphasize venereal disease control in the military and defense areas of the state. Concentration of effort in these areas will anticipate and manage any increased prevalence of venereal disease as a result of the defense effort.

A research project under the direction of Dr. John J. Wright, School of Public Health, known as the **North Carolina Syphilis Studies** was set in 1940 to follow the trends in syphilis over a long period of time. The project is located at the School of Public Health in Chapel Hill and is under the administration of the Division of Epidemiology of the State Board of Health. Funds are derived from the University and from federal grant-in-aid allocations to the State Board of Health.

Basic data on all stages of syphilis occurring in the area have been accumu-

lated since 1941 in the form of register of serologic tests and a register of all births in the area. These data are being used for evaluating venereal disease control programs.

During 1950 the following studies were published:

1. Greenberg, B. G., Wright, J. J., and Sheps, C. G.: "A TECHNIQUE FOR ANALYZING SOME FACTORS AFFECTING THE INCIDENCE OF SYPHILIS", *Journal of American Statistical Association*, September 1950, Vol. 45, pp. 373-399.
2. Wright, J. J., and Sheps, C. G.: "ROLE OF CASE FINDING CONTROL TODAY", *American Journal of Public Health and The Nation's Health*, July 1950, Vol. 40, No. 7.
3. Wright, J. J., Sheps, C. G., and Gifford, A. E.: "REPORTS OF THE NORTH CAROLINA SYPHILIS STUDIES: V. Indices in the Measurement of Congenital Syphilis", *American Journal of Syphilis, Gonorrhea and Venereal Diseases*. In Press.

Since July 1950 the staff have been engaged in three studies relating to the problem of congenital syphilis:

1. A retrograde epidemiologic study is being completed of a series of cases of congenital syphilis reported during the past few years in the area surrounding Chapel Hill. By interviews with families and physicians, and review of all available medical and health records on the families, an attempt is being made to find why congenital syphilis is still a problem despite seemingly adequate means of prevention.

2. A series of cases of maternal syphilis are being studied to determine the most efficient case-finding methods.

3. A study of 14,000 pregnancies occurring in the area in the past nine years is being made to determine to what extent serologic tests are being done during pregnancy as a routine practice.

Members of the staff have also taken part in the teaching of venereal disease control methods at the School of

Public Health and at the North Carolina College at Durham and have participated in venereal disease seminars sponsored by the Public Health Service in Phoenix, Arizona; Chicago; Illinois; and Roanoke, Virginia.

INDUSTRIAL HYGIENE SECTION—O. J. Swisher, Jr., M.D., Chief

Medical Service

I. Number plants surveyed (industries with silica and asbestos hazards) _____	116
Physical examinations and x-rays _____	3,603
Number issued work cards _____	3,492
Number rejected _____	111
Diagnoses of rejects:	
23 silicosis, first stage.	
32 silicosis, second stage.	
14 silicosis, third stage.	
11 with no dust pathology but recommended to have sanatorium study due to other pathology.	
3 asbestosis, first stage.	
3 asbestosis, third stage.	
22 recommended to have sanatorium study due to questionable tuberculosis.	
1 cardiac enlargement.	
2 cystic disease of lungs.	
Industries surveyed included the following:	
14 marble and granite.	
3 asbestos.	
44 machine works and iron foundries.	
14 monumental works.	
16 quarries and stone companies.	
8 feldspar.	
10 mica.	
1 tungsten.	
1 vermiculite,	
1 pottery.	
1 ilmenite.	
3 pyrophyllite or kaolin.	
X-rays taken in non-dusty trades _____	465
Non-dusty trades included:	
Carolina Mirror Corporation	
Sanford Tobacco Refining Company	
State Highway Department	
II. Medical case histories submitted to Industrial Commission _____	60
Supplementary medical case histories submitted to Industrial Commission _____	8
Special physical examinations and x-rays as requested by Industrial Commission _____	70
Diagnoses of special examinations and x-rays:	
13 silicosis, first stage	
23 silicosis, second stage	
12 silicosis, third stage	
7 asbestosis, first stage	
3 asbestosis, second stage	
3 asbestosis, third stage	
1 with no dust pathology but emphysematous blebs	
4 for further sanatorium study	
4 essentially negative	

III. Court hearings	33
29 hearings testified by Dr. Swisher	
4 hearings testified by Dr. Davis	
These court hearings included employees from the following plants:	
Asheville Mica	Carpenter & Phillips Mica
D. T. Vance Mica	Carolina Marble & Granite
Cole-Willard Stone	Bradley Mining
Harris Clay	Glascocock Stove Works
	English Mica
	Feldspar Producing
	Union Asbestos
	Wysong-Miles Foundry
The following diagnoses were given in these court hearings:	
3 silicosis, first stage	
19 silicosis, second stage (one with questionable tuberculosis).	
7 silicosis, third stage (one with questionable tuberculosis).	
3 asbestosis, second stage	
1 essentially negative	
Superior Court cases	1
(employee of Palmer Stone Works, with diagnosis of silicosis, first stage with old healed tuberculosis lesions, inactive in both apices).	
Cases settled out of court	5
Cases continued	3
Cases postponed	1
IV. Pre-employment x-rays and statements submitted	133
Number re-takes (x-ray) made during year	9
V. Conferences with Medical Advisory Committee	11

Since the adoption of the new policy for more rapid x-raying of employees in the dusty trades, there has been a little more than double the number of examinations and x-rays made by this Section during the year 1950 over that of the previous year. Under the new policy, the field work is handled directly by Dr. C. B. Davis, Senior Public Health Physician, the employees of the dusty trades x-rayed, occupational histories taken, and the x-rays processed at this office. Those employees found to have dust pathology are called in to this office for a complete physical examination after which the findings are again reviewed by the Advisory Medical Committee and the advisability of their continuing their employment in a dusty trade determined.

Employees with a first or second stage asbestosis or silicosis are permitted to continue their employment in a dusty trade under the following circumstances:

- 1) No progression is shown in pathology over a period of years;
- (2) No clinical findings or symptoms that would warrant their removal from dust;
- (3) the individuals agree to wear a respirator while exposed to dust (this is

especially true of the asbestos industry). Permission is granted only after careful study of the employee's physical and medical findings by the Advisory Medical Committee. Employees whose physical findings indicate progression of the disease are not permitted to return to work in the dusty trades.

A Hewson Clinitron was purchased and installed in our mobile x-ray unit during the month of December. This equipment is used for rapid processing of employees for determination of diabetes and is coupled with dusty and non-dusty trade surveys carried out by this Section. As this Section does not employ the necessary personnel to operate the Clinitron, the local health department in the county in which industry is under survey takes charge of the program. To date, there have been approximately 12 cases of diabetes found. These have been referred to their physicians for medical care.

During the year a senior general clerk was employed by this Section and proved to be very proficient in helping with the x-ray work on the mobile unit after the resignation of our senior photofluorographic operator.

Engineering Service

The present emergency has imposed upon industry of North Carolina the burden of increasing production of materials required in a program of national defense. This has resulted in expansion of already existing production facilities and the establishment of new ones. Associated with this expansion has been the introduction of new processes, new materials, and personnel. These always contribute to the problems of industrial health. These problems are being studied, in so far as resources of this Section permit. Many plants have shown their interest in these problems by calling on engineers of this Section for assistance towards evaluating and controlling hazards which might impair the worker's health. A staff of three engineers was engaged in this work until December 1950, when one member was recalled to military service. Due to limited number of people with industrial hygiene engineering training and experience, possibility of replacement appears remote.

In July, the State Board of Health cooperated with North Carolina Council of Civil Defense by sending an industrial hygiene engineer to a five-weeks course on radiological warfare, sponsored by the Atomic Energy Commission, and held at Illinois Institute of Technology, Chicago.

Following a plan to decentralize engineering activities of this Section, two members of the staff moved their headquarters to Charlotte where the City of Charlotte furnished required office space. One engineer remained in Raleigh until his recall to military service. The plan, designed to better serve industry, is proving its value in having the advantage of an office more centrally located with respect to the industrialized Piedmont section of the state.

A statistical summary of industrial hygiene engineering activities during the period covered by this report is presented.

Industrial Hygiene Engineering Activities for 1950

I. Field

A. Plants visits	270
1. Routine inspection	86
2. Special Industrial Hygiene surveys	126
a. Samples atmospheric Contaminants collected	283
(1) Dust	243
(2) Other	40
3. Number workers involved	5,749
4. Field determinations	142

I. Laboratory

A. Analyses	204
1. Dust	182
a. Particle count	137
b. Particle size	0
c. Petrographic	9
2. Other contaminants	16

III. Miscellaneous

A. Reports	126
1. Routine inspections	16
2. Special Industrial Hygiene surveys	110
3. Monthly	12
4. Annual	1

PUBLIC HEALTH STATISTICS—C. R. Council, Chief

The Public Health Statistics Section had its beginning with the reorganization of the State Board of Health in February 1950. The primary purpose in establishing such a section was to centralize, in so far as practical, all statistical activities relating to the state public health program. As of the close of the year 1950, all or part of the Public Health Statistics Section performed statistical activities for the following sections:

Maternal and Child Health
Tuberculosis Control
Cancer
Heart Disease
Venereal Disease Control
Mental Health
Acute Communicable Disease Control
Accident Prevention

Special Projects

Special projects undertaken during the year are described below:

1. Birth Registration Test.

This project is being conducted on a cooperative basis by the Bureau of the Census, the National Office of Vital Statistics, and each State Registrar. The primary purpose of this test, from our standpoint, is to obtain measures of registration completeness in local areas of the state on a comparable basis. The Bureau of the Census can use the test to measure the extent of under-enumeration of the infant population for the nation, and for various geographic and population subdivisions. It may be used to help ascertain reasons for failure to enumerate infants in the population. The test will also make available correction factors for vital statistics based on registered births and provide data for special analytical studies.

2. Prematurity Death Study.

Death due to infants born prematurely is one of the ten leading causes of death in the over-all population in spite of the fact that such deaths are related to that segment of the population under one year of age. Because of this relatively high loss of life, and because efforts are always being made to improve the general health of the child, a statistical study was begun in early 1950 to determine the basic problems associated with this subject.

It was necessary to know if the premature problem was general; if it was greater among the mothers in the rural or urban areas; if it was higher in one age group of mothers than in another; if race, attendant, or institution of birth affected the number of premature deaths in any unusual manner. Some knowledge was also needed of birth order as to which child had the best chance of survival: the first born, second born, third born, etc.

These factors, plus others that might influence the premature death rate, were studied in the hope of obtaining answers that might emphasize the salient reasons for premature births that terminated fatally, thereby doing the most good, from a life-saving standpoint, with

a minimum of services rendered.

3. General Accident Fatality Report.

Accidents are one of the most important leading causes of death. Detailed information about the circumstances of fatal accidents has been needed for a long time in order to develop programs of accident prevention. The State Board of Health, with the cooperation of the city and county health departments, adopted the program of following up each fatal non-motor vehicle accident by use of a special report form. This report form furnished additional facts associated with the death but not available on the death certificate. The forms were processed and worthwhile data such as nature and manner of injury, agent or object associated with the accident, type of place, time, and how accident occurred, were studied in approaching the problem with the intent of avoiding future accidents.

4. Other Special Studies.

The Section in continuing other special studies begun in former years. The special maternal mortality survey begun several years ago under the sponsorship of the North Carolina Medical Society Committee on Maternal Welfare was carried on in 1950 in the same manner as in former years.

A program to improve the promptness and completeness of birth and death registration was begun in June 1947 and is being continued with very good results. The per cent of births and deaths filed late since that time has been reduced by over 35 per cent.

The motor vehicle accident fatality survey was continued in 1950 in cooperation with the State Department of Motor Vehicles. The increase in deaths from this cause was anticipated due to the increased road miles traveled and to the additional number of motor vehicles using the highways. In this survey, as in the General Accident Fatality survey, more detailed factors associated with death are collected, tabulated, and analyzed than are available on the death certificate.

Personnel and tabulating machine facilities of the Section have been utilized in continuing the program of edu-

cating parents of first-born children as to caring for the child in its first twelve months of life. A series of twelve mental hygiene pamphlets are sent to the parents on a monthly basis. Approximately 30,000 sets of twelve pamphlets each were addressed and mailed monthly during the year.

Further selected statistical studies on the prevalence of tuberculosis in different sections of the state, by age, color, sex, and occupation were carried on during the year.

Routine Activities

On a comparable basis, more work of a statistical nature has been done on what is generally thought of as vital statistics—births, deaths, stillbirths, population—than for any of the sections named.

During the year, approximately 122,000 current and delayed births were recorded, 32,000 deaths, and 3,000 stillbirths. Recording these certificates meant editing for promptness, completeness, and accuracy, authorizing for payment by each county treasurer, coding, microfilming, preparing punch cards, verifying, tabulating, printing, binding, indexing, and a host of other operations necessary to process efficiently such a volume of certificates.

From this routine of activities, several invaluable indices of the state's progress in health were derived.

There were 34.6 infant deaths per 1000 live births (provisional figure) in 1950. This compares favorably with recent years and resumes a downward trend interrupted in 1948 and again in 1949.

The provisional maternal mortality rate was 1.2, the same as in 1949.

Birth and death certificates received through December 1950 indicate that the official crude birth and death rates will be slightly lower than in 1949. The provisional rates based on all certificates of residents received in 1950, with no regard to year of occurrence, are 26.4 live births per 1000 population and 7.7 deaths. The official rates will be slightly lower since the final figures will include 1950 occurrences received through March

1951. Approximately two per cent of our certificates are received too late to be included in the official figures.

Since 1925, diseases of the heart have been the leading cause of death in this state and each year a greater proportion of all deaths are claimed by this cause. In 1925, the heart disease death rate was 123.5 per 100,000 population; in 1950, the provisional rate was 239.1. Stated another way, 11 per cent of all deaths in 1925 were due to diseases of the heart, whereas 31 per cent were due to this cause in 1950.

Certain other leading causes of death, with provisional rates were 100,000 population, are as follows:

Cause	Number	Rate
Vascular lesions	3,855	95.4
Cancer	3,115	77.1
Influenza and pneumonia ..	1,383	34.2
Non-motor vehicle accidents	1,251	31.0
Motor vehicle accidents	1,089	27.0
Immaturity (unqualified) ..	880	21.8

Due to the revised method of assigning causes of death begun in 1949, nephritis dropped out of the seven leading causes of death.

The program to improve registration was intensified in 1950. A full-time field representative continued to visit persons responsible for filing certificates and to investigate cases of unusual delay in registration. Teaching periods were continued for midwives to improve their knowledge of correct birth registration.

The outbreak in Korea resulted in an increased demand for certificates needed for wartime reasons. More certified copies of births and deaths and verifications were issued in 1950 than in any year since **World War II**.

Two more county health departments assumed the responsibility of registering all certificates in 1950. Local city and township registrars still serve in 59 counties. There are approximately 600 such registrars at present. At one time there were 1,500 local registrars. The number of local registrars is decreased every time a local health officer is appointed local registrar for an entire county. This simplifies the whole registration process, and is being insti-

tuted as rapidly as health department facilities are developed.

The Section increased the amount of statistical service in 1950. More special requests from physicians, other individuals, and various agencies, were received and information provided than in previous years.

Accident Prevention Section

This Section is in the process of formation. Funds have not yet become available for personnel or operating expenses. Up to the present, activities have consisted of exploration of the problem by the Division Director and preliminary

planning of activities to be instituted when funds are provided.

Non-motor vehicle and non-industrial accidents now rank as the fifth leading cause of death in North Carolina. The majority of these accidents are in the home. Due to the decline of communicable diseases in childhood, and the continuation of accidents as an increasing hazard, accidents are now the leading cause of death among individuals between the ages of one and twenty-five years. The most numerous accidents are falls of elderly persons.

The following table presents a summary of the accident deaths for the year 1949:

Leading Causes of Accidental Deaths, by Place of Occurrence, by Age, North Carolina

Cause of Death	Number	Under 1 year	1-14 yrs.	15 & over
All accidents	2,241	157	343	1,741
Motor Vehicle	965	6	134	825
Traffic	939	5	120	814
Non-Traffic	26	1	14	11
All Other Accidents	1,276	151	209	916
Falls	258	1	10	247
Drowning	121	—	37	84
Conflagration	116	5	41	70
Mechanical Suffocation	112	103	3	6
Burns (other than conflagration)	98	4	28	66
Firearms	89	—	24	65
Poisonings by solids and liquids	70	3	20	47
Water Transports	56	—	8	48
Other Road Vehicles	19	—	8	11
Railway	51	—	2	49
Aircraft	46	—	—	46
Blow from Falling Object	39	—	5	34
Other Accidents	192	35	23	134
Late Effects of Injury and Poisoning	9	—	—	9

The activities of this Section will be directed primarily at home accident prevention. Local health department staff members will be given training to acquaint them with the nature and scope of the problem as well as the basic techniques of prevention. Wherever possible, support will be given to the industrial safety program of the Industrial Commission and Labor Department as well as to the highway safety program of the Motor Vehicle Bureau. There is within the state government no centralized effort in the field of home

accident prevention. This important problem, which together with other non-motor vehicle accidents in 1949 caused over twice as many deaths as motor vehicle and industrial accidents combined, is appropriately of concern to the public health organization of the state.

SANITARY ENGINEERING DIVISION
—J. M. Jarrett, B.S., Director

The following is a very brief summary of the numerous activities engaged in

by the personnel of this Division during the calendar year, 1950. Only the highlights of the year's program and accomplishments are enumerated here, since detailed monthly reports of the activities have been submitted to the State Health Officer and members of the State Board of Health.

Administration

Our program of cooperation and assistance to Federal, State, municipal and county officials, and agencies concerned with mutual problems relating to sanitary engineering or sanitation, has continued during the year. Special assistance was given to the Budget Bureau, Department of Public Instruction, Department of Public Welfare, State Highway and Public Works Commission, Hospitals Board of Control, State Department of Conservation and Development, School of Public Health, University of North Carolina, N. C. State College, State Department of Agriculture, architects, consulting engineers, municipal officials, and local health departments.

The administration of the work within the Division was improved during the year, and was expanded to provide better service to those requesting assistance. A unit designated as the Insect and Rodent Control Section was created in the Division, following the reorganization of the State Board of Health, when Malaria Control was transferred to this office from the Division of Epidemiology.

Personnel changes were the lowest we have had in recent years, only two secretaries being replaced. Four new persons were added to our staff: one engineer on industrial waste studies, one junior engineer as a district engineer, one district sanitarian, and one secretary. At the end of the year, the personnel employed consisted of 12 engineers, 13 sanitarians, 1 entomologist, 6 secretaries, in addition to the Director, making a total of 33 employees. This does not include those persons paid directly by the U. S. Public Health Service and assigned to Malaria and Typhus Control activities.

SANITARY ENGINEERING SECTION —E. C. Hubbard, Chief

Considerable time was devoted during the year to assisting the operators of municipal water and sewage treatment plants in connection with operational problems. Assistance was also given the operators through schools conducted for them at the University of North Carolina and Duke University. A great number of conferences were also held with private consulting engineers and architects relative to planning and designing water and sewerage facilities. We assisted a number of towns with the location of new well sites, this work being carried on in cooperation with the State Geologist's office. Many improvements were accomplished in connection with municipal water and sewage treatment, although they will not be listed here in detail. Projects completed, or under contract, amounted to an estimated cost of over \$13,000,000. The number of projects involved was 76.

The industrial waste studies, begun late in 1949 by virtue of the passage of Public Law 845 and the allocation of special funds to the State Board of Health, got under way and work was carried on at Winston-Salem, Thomasville, Statesville, Marion, Mt. Airy, and Elkin. In connection with this activity, laboratory facilities were provided in the State Laboratory of Hygiene for the examination of sewage and industrial wastes. The addition of this laboratory has greatly augmented the work being done in this field. A special research project was also carried on in cooperation with Professor Granstrom and the School of Public Health at the University of North Carolina on a study of rendering plant wastes. The office also cooperated with the State Stream Sanitation and Conservation Committee, of which the Director is Chairman, and the work of this Committee was correlated as much as possible with the regular activities of the Division. Considerable time was devoted to conferences and consultations with representatives of out-of-State industries that were considering sites for the location of their

plants within the State. Technical problems relating to their waste disposal were of primary importance and further emphasized the need for more adequate laws relating to stream sanitation.

The laboratory of the U. S. Geological Survey, located in the State Laboratory of Hygiene, continued to cooperate in supplying us with information regarding public and industrial water supplies in the State as to their chemical content. The work began last year in connection with the State Highway and Public Works Commission also continued. Fairly complete analyses of the waters of the prison camps are now available.

Surveys and inspections were made of all interstate carrier watering points and water supplies, and reports were furnished the U. S. Public Health Service as one of our cooperative projects with them. We also worked with the Public Health Service and the National Park Service in connection with sanitation problems created by the construction and paving of the Blue Ridge Parkway,¹ because of its relation to some of our municipal mountain water supplies.

Continued efforts were put forth to promote the proper disposal of garbage and refuse through the sanitary landfill method. The most outstanding project in this field was the establishment of a sanitary landfill by Durham County, and the provision of county-wide garbage collection service. Landfills were also installed at Black Mountain, Fontana, Hendersonville, and Brevard.

Considerable time was given by the Engineering Section to conferences with officials of Sanitary Districts in connection with financing problems, development of plans, and other matters relating to the establishment of proper sanitation facilities within these areas. Preliminary work was done toward the creation of three new districts.

The program of approving water and sewerage facilities at FHA insured homes is rapidly expanding, and the inspection and approval of subdivisions were continued. It is expected that housing problems brought about in certain

defense and military areas will also greatly increase this activity during the coming year.

SANITATION SECTION—R. L. Cavinness, Chief

A number of activities which we believe will have considerable impact upon the future development and progress of our sanitation activities were inaugurated, or further developed. One project of considerable importance was carried on in connection with the Vocational Agriculture teachers through the State Department of Public Instruction. This work consisted of demonstrations held throughout the State for teachers of vocational agriculture in the proper construction and installation of residential type septic tanks. Our engineers and sanitarians worked with these groups, and it is believed that better construction and promotion of facilities at rural homes will be forthcoming. Considerable emphasis was also placed on maintenance and construction of sanitary privies in those areas where municipal water and sewerage are not available. A large number of the local health departments have neglected this work during recent years, and through the efforts of this office more interest is being shown in rural sanitation activities by the local health departments.

A cooperative project was also worked out with the Schoolhouse Planning Division of the Department of Public Instruction whereby our engineers review and work with this group in the approval of plans for new schoolhouses, water and sewerage for these schools, and in the design of proper facilities for cafeterias and lunchrooms. We believe that the program started this year will prove of considerable value, particularly in view of the large schoolhouse construction program underway throughout the State.

As mentioned in my report last year, laboratory facilities for the examination of shellfish were sorely needed. This laboratory was established this year in cooperation with the Carteret County

Health Department and the State Department of Conservation and Development, and should add materially to the work being done in connection with shellfish sanitation.

Representatives of this office, working in cooperation with the School Coordinating Unit and Department of Public Instruction, have also developed for use by the local health departments, a system of grading and the score sheets which will be used by the Department of Public Instruction in their program of accrediting schools. Heretofore, we have had no standard school inspectional procedure by local health departments. We also believe that this is a forward step in providing better sanitary facilities at our public schools.

Milk work has continued as in previous years, this work consisting primarily of surveys and assistance to local health departments and the dairy industry in connection with the construction of pasteurization plants and dairies. Two short courses have been worked out with the N. C. State College and the School of Public Health at the University of North Carolina, in which local sanitarians are given a two-week's course in pasteurization plant operation. These courses have proved to be exceptionally popular and helpful to the local sanitarians who are given practical instruction for a period of two weeks in a modern milk plant where they can study all types of equipment and its operation. Several special milk conferences were also held through the State, in order to instruct the local sanitarians on the proper interpretation of the Standard Milk Ordinance. These conferences have also gone a long way toward eliminating misunderstandings and bringing about better working relationships between the health department and the industry involved.

As reported last year, special field training centers were established for the training of sanitation personnel. Classes continued in connection with this field training program, and during the year 43 sanitarians were given this eight weeks' course of training. Plans

are under way for the reorganization of these training programs, which we hope will be brought about during the coming year.

Inspections and surveys were made of all the State institutions, particularly the hospitals and mental institutions. Reports were submitted to other State agencies involved, such as the Department of Public Welfare. Because of the work which has been going on for some time in connection with the sanitation of State institutions, considerable improvement was made during the past year in the physical facilities at these institutions. The most notable improvements were carried on at State Hospital at Goldsboro, Colored Division of T. B. Hospital at McCain, White Division of T. B. Hospital at McCain, State Hospital at Raleigh, and Caswell Training School at Kinston, and the sanitation of these institutions, particularly with regard to food handling, is, in our opinion, a credit to the State, and to those responsible for the management and operation of these places.

INSECT AND RODENT CONTROL SECTION—C. M. White, Chief

The malaria control work, was carried on in previous years through the Division of Epidemiology, was transferred to the Sanitary Engineering Division on March 1. This program has been financed for the past several years primarily by the U. S. Public Health Service. Because of the nation-wide reduction in malaria, the Public Health Service reduced our allocation for the fiscal year beginning July 1, 1950. This has necessitated a complete revision of the type of program which was formerly carried on, in order that it might fit into our general sanitation programs in cooperation with local health departments. Consequently, the typhus control work and the malaria control work have been combined, and a section created in the Division known as the "Insect and Rodent Control Section." For the fiscal year ending June 30, 1950, a total allocation of \$107,785 was received from the Public Health Service for malaria

and typhus control activities, while for the current fiscal year this was reduced to \$30,900.

In reorganizing these programs, we have adopted a new approach to the control of arthropod-borne diseases, emphasis now being placed on intensive, rather than extensive operations. Where well defined problems formerly existed, the abatement of which required the employment of large forces of men, in accordance with well established and proved methods or procedure, it is now difficult at time to determine whether or not the diseases exist in a locality. Reports were received during the year from several areas, indicating that a large number of cases of malaria existed. Upon detailed investigations, however, it was determined that the reports were based on a faulty diagnosis. In cooperation with the Public Health Service, the work of the laboratory technicians was checked by a physician of the Public Health Service who made an evaluation of the laboratories in two hospitals and it was determined that the technicians had mistaken blood platelets or artifacts for the plasmodia. We have also found that it is difficult to establish the typhus fever foci, since physicians frequently report typhus and other Rickettsial diseases, in accordance with clinical diagnoses, before receiving laboratory reports. As a result, a number of cases of typhus fever have been reported as Rocky Mountain Spotted Fever, and vice-versa.

In addition to this surveillance program on which every effort is made to correctly establish the existence and location of these diseases, one of the principal activities has been the prevention of new hazards, such as improperly constructed impoundments which would breed mosquitoes. Impounded water regulations require that a permit be obtained before a pond is built, and the builder agrees to maintain the pond in such a manner that it will not breed mosquitoes. We have assisted the local health departments in connection with this work, and have made a great number of the inspections directly from this office. During the year, 716 applications

for permits to build ponds were received.

Conferences were held with the U. S. Public Health Service and the U. S. Corps of Engineers, as well as representatives of other states, relative to army regulations in connection with the construction of large power reservoirs. We were particularly concerned with the 14,000 acres of Buggs Island Reservoir located in North Carolina. It has finally been agreed by the Corps of Engineers that they would follow our regulations in the construction of this impoundment, and have adopted mosquito control plans which are agreeable to us. Other major impoundments which will probably be built in the near future will also require close supervision of control operations.

Even though the drastic reduction in Federal appropriations have reduced insect and rodent control activities in many localities, considerable work is still being carried on with local funds. During the year, 20 counties and 2 cities conducted DDT residual spraying programs on which 40,857 premises were sprayed. Fly control operations of some type were carried out in most of the counties. Five cities maintained rat-proofing programs. DDT dusting for rat ectoparasites was done on a large scale in 5 cities, and regular rat-poisoning activities were in operation in 13 cities. Emphasis is still being placed on proper storage, collection, and disposal of garbage and refuse as another phase of our insect and rodent control program.

The entomologist with the Division assisted local health departments in connection with the identification of rat ectoparasites, miscellaneous insects, such as ticks, lice, etc., and also carried on the laboratory examination of blood slides and made special investigations. During the year, 1438 blood slides were taken at Roanoke Rapids and sent to the U. S. Public Health Service at Atlanta for examination. Two thousand eight hundred and thirty-five blood slides were examined by State and Malaria Control personnel. These blood slides came from school surveys made in 1949, and also from those sent in by

practicing physicians in 1950.

Attached to this report is a numerical tabulation of some of the major activi-

ties that were carried on by the Sanitary Engineering Division during the year 1950.

Numerical Summary of Activities January 1, 1950—December 31, 1950

Engineering:

Public water supply inspections	525
Well sites examined and approved	53
Water samples collected and examined	66
Special investigations conducted (water supplies)	38
Sewerage system inspections	404
Stream pollution problems investigated	25
Plant site investigations	148
Special investigations (sewerage systems)	51
Sand analyses	47
Water supply plans approved	40
Sewage works plans approved	60
Swimming pool plans approved	4
Sewage plant plans furnished	130
Swimming pool plans furnished	15
Outdoor bathing places investigated	11
Sources of water supply examined for interstate carriers	15
Watering points examined	49
FHA developments investigated	30
FHA cases processed	1,871
Special conferences with engineers, city, and county officials	669
Premises inspected for ratproofing and eradication	8,986
Establishments ratproofed	565
Cost to owners for ratproofing	\$35,075
Premises treated (eradication)	3,698
Premises inspected for DDT dusting	34,227
Premises treated (DDT)	24,204
Pounds of DDT dust used	32,884
Premises treated (Poison)	23,820
Local campaigns supervised (ratpoisoning)	13

Sanitation:

Milk Plant inspections	250
Dairy farm inspections	1,254
Milk surveys completed	49
Milk plant plans reviewed	56
Special investigations (milk)	32
Milk samples collected	107
Conferences regarding milk	312
Foodhandling establishments inspected	1,485
School lunchroom inspections	332
Abattoir and meat processing plant inspections	207
Meat market inspections	444
Frozen food locker plant inspections	60
Poultry plant inspections	200
Plans reviewed for foodhandling establishments	546
Foodhandler schools held	42
Private water supply inspections	1,392
Private sewage disposal inspections	530
Privy inspections	3,934

Summer camp inspections	43
Institutions inspected	249
Hospital plans reviewed	138
Hospital plans approved	33
Public school inspections	154
Swimming pool inspections	20
Hotel and tourist camp inspections	171
Complaints general sanitation	134
Special investigations	78
Special meetings	313
Shellfish packing plants inspected	817
Retail seafood markets inspected	70
Patrol inspections of restricted waters	63
Plans distributed	136
Number of court cases	19
Bedding:	
Retail places inspected	1,473
Manufacturing plants inspected	4,115
Pieces of bedding condemned	2,370

LABORATORY OF HYGIENE DIVISION—J. H. Hamilton, M.D., Director

The State Laboratory of Hygiene continued in 1950 to render service to physicians, hospitals, and Health Departments in their efforts to prolong human life. The time-tested procedures have been followed, improved methods have been developed when possible, and new activities have been started.

From the standpoint of history, the State Laboratory of Hygiene had its beginning with the examination of specimens of water from supplies offering water for sale. During the past year the laboratory examined 10,199 specimens of water. This is an increase of more than 500 specimens over 1949. Part of this increase was due to the addition of new public water supplies.

The Laboratory has provided funds, space, and utilities for the study of North Carolina water supplies, conducted by the United States Geological Survey and the North Carolina Department of Conservation and Development. The following publications have resulted from this study:

- Surface Water Supplies in North Carolina
- Flouride in Surface Water and Public Water Supplies
- Public Ground Water Supplies in North Carolina

From the standpoint of the Laboratory, North Carolina is continuing to make progress in its fight against typhoid. We made more blood cultures for typhoid in 1950 than we did in 1949 and recovered the typhoid organism in 34 instances during the past year. Greater diligence has been shown in 1950 in the search for typhoid carriers—3,659 examinations resulted in an even one hundred persons being demonstrated as harboring the organism.

Agglutination tests for typhoid were smaller in number as were the number of positive reactions.

Agglutination tests for other diseases; such as Undulant Fever, the Rickettsia Infections, and Tularemia were all smaller in number in 1950 than in 1949.

There was also a reduction in the number of miscellaneous blood cultures.

Slightly more than 1700 cultures were examined for the gonococcus, which was recovered in only 24 specimens; whereas, a large number examined in 1949 yielded 247 positive isolations.

There was also a decrease in the number of animal heads examined for rabies, as well as in the number of animals found to have the disease. Notwithstanding this fact, practically the same number—865 persons received antirabic treatments prepared by the State Laboratory of Hygiene in 1950 as against 868 in 1949.

Our physicians, as well as our health departments, have been more active in their fight against intestinal parasites in 1950 than they have been for years. Of 16,660 examinations one or two parasites were found in 3,172 specimens—the percentage of infestation was considerably higher than in 1949 when 14,352 specimens showed only 2,367 with parasites.

For diphtheria a larger number of examinations was made in 1950 than in 1949 but fewer typical organisms were found.

For two successive years now the laboratory has examined hundreds of blood films for Malaria without finding a single parasite in those specimens which were sent for diagnosis. In 1949—1019 specimens were examined and in 1950—662.

The increased interest in tuberculosis was reflected in the number of specimens of sputum sent for microscopic examinations and for culture—17,022 such specimens were examined in 1950—the tubercle bacillus being found in 1,688 of these which is a smaller number than was found in 15,464 examinations with 1,738 showing typical organisms.

The number of specimens sent for miscellaneous examinations was greater in 1950 than in 1949—3,519 as compared to 2,924.

North Carolina's interest in Vincent's Angina is continuing to decrease, only 2,007 specimens being received during the past calendar year.

Serological tests for syphilis continue to be one of the major activities of the laboratory. There was an actual increase in the number of specimens of blood received during the calendar year, 1950—305,532 as compared with 293,905 in 1949. The number of doubtful and positive reactions in 1950 were approximately one-third less than in 1949.

The number of spinal fluids examined in 1950 was only slightly greater than in 1949.

Other serological tests included complement fixation for Endemic Typhus—981 specimens of blood from rats and 13 specimens from humans. Complement fixation tests were performed on

14 patients for Rocky Mountain Spotted Fever, three specimens for Rickettsial Pox, two specimens for Eastern Equine Encephalomyelitis, and 2 specimens for Q Fever.

One of the new activities of the Laboratory—that of Cytological examination of smears, was increased markedly during 1950—a total of 5,191 examinations were made. All of the specimens except 677 made on the female inmates of the State Hospital in Raleigh, were sent from the various cancer clinics conducted throughout the State. The Clinic in Durham contributed 1,440 of these and the Clinic in Wilmington—being second, contributed 1,390. The Laboratory hopes to extend this service as soon as competent cytologists can be trained.

Another new activity of the Laboratory is in the field of stream pollution. Chemical analyses were made on 387 specimens.

Of the biological products prepared and distributed by the Laboratory—the quantity of typhoid vaccine has shown a marked decrease during 1950. The decreased prevalence of the disease has made unnecessary many of the former popular immunization clinics. The diminished dose used in immunization has also tended to reduce the volume of the vaccine.

Smallpox vaccine was used in a smaller amount in 1950 than 1949, although a sufficient amount of vaccine was distributed to vaccinate 228,257. Our improved Pertussis Vaccine, continuing to increase in popularity each year since the Laboratory first offered it, has shown an increase over the previous year—1950 is no exception, even though there is a definite increase in the popularity of the multiple antigen immunizing agents.

There seems to be an increased tendency toward the immunization of other children and adults to diphtheria. There was a sizeable increase in the amount of the Ramon or soluble diphtheria toxoid during the past year. There was also an increase in the amount of Alum Precipitated Diphtheria toxoid. The combinations of diphtheria toxoid with Pertussis Vaccine, and with Tetanus

Toxoid; and Diphtheria Toxoid with Tetanus Toxoid and Pertussis—the so-called triple antigen, also showed marked increase in 1950. Almost three times as much triple antigens was used in 1950 and in 1949. The demand for Schick Test and Schick Test Control material was almost unchanged.

Notwithstanding the fact that a large number of children were immunized against Tetanus with Tetanus Toxoid there is still an increase in the amount of tetanus antitoxin distributed, both for prophylactic and therapeutic purposes.

In spite of the increase in the amount of Scarlet Fever, there was a very small amount of Dick Test material distributed by the Laboratory.

From the administrative point of view the first half of the year 1950 was relatively free from worry. There were fewer resignations than we had experienced for several years. The second half of the year was a marked contrast. Presumably the outbreak of the War in Korea, the increase in the number of men in uniform and the step-up in military preparations, resulted in a marked increase in the number of resignations. We lost some experienced workers which we could ill afford to lose and some well trained youngsters who showed promise of developing into dependable bacteriologists. The workers who have been with us through the years have manifested a commendable loyalty to our Institution and to the cause to which it was dedicated. We feel confident that they—with the assistance of such recruits as we may be able to attach to our staff, will continue to render dependable service and make a commendable contribution to the protection of the people of North Carolina.

ORAL HYGIENE DIVISION — Ernest A. Branch, D.D.S., Director

More than 76,000 children in the elementary schools of North Carolina had an opportunity, during the year, 1950, to learn dental health facts through classroom instruction by the dentists on the staff of the Oral Hygiene Division,

while 165,000 children and teachers learned about teeth from Little Jack and his dental health puppet show.

The mouths of more than 81,000 children were inspected. For 32,000 underprivileged children the staff dentists made the necessary dental corrections, referring the privileged children to their own dentists.

The ten full-time State school dentists visited 522 elementary schools in 55 counties.

In addition to the children who received dental health instruction from the dentists and puppet show, many other classroom groups have used the dental health educational materials prepared and distributed by the Oral Hygiene Division. A conservative estimate would indicate that the mouth health program has reached at least 250,000 children, or about half of the enrollment of the elementary grades during this one year.

The record is not so good in respect to dental inspection and treatments, due to the shortage of public health dentists. This time last year the prospects for recruiting the staff were excellent. However, the Korean situation arose, practically barring us from the recruitment field. Because of the present national situation a further reduction in the staff is imminent.

The changing conditions and circumstances call for new ventures and programs. Plans are now being worked out to try to meet this emergency. The dentists in private practice are being called on to supplement the services of the staff dentists in making dental corrections for the underprivileged children.

The Executive Committee of the North Carolina Dental Society and the Dental Members of the County Boards of Health have endorsed in substance the following basic principles as guides for the proposed emergency program:

1. Every dentist licensed to practice in the State will be given the opportunity to participate, but no dentist will participate to the extent of devoting more than six hours a week to this program.

2. Payment to the dentists will be on

an hourly basis, and the dentists will accept a rate which will be less than their usual remuneration.

3. Children who receive the service are to be certified by the welfare department as being financially unable to pay for dental service.

4. The service is to consist only of the following treatments: extractions, simple fillings, prophylaxes, silver nitrate treatments, and the topical application of sodium fluoride; with the relief of pain and extractions having the priority.

Trial programs have been inaugurated in several counties. Reports indicate that they are proving satisfactory. Dr. Branch, has, in the last few months, travelled from one end of the State to the other, meeting with school, public health, and dental groups. He has been most successful in securing the interest and cooperation of the private practitioners in this emergency measure.

Of necessity the setting up of this supplementary corrective program has required time and attention. Lest it appear that there has been a change of emphasis, we wish to reaffirm our adherence to the principles that public health's sphere is in the field of prevention and that education is the most effective approach to the problem of prevention. The Division of Oral Hygiene is endeavoring to attain its objective, the reduction of the incidence of dental defects and of systemic diseases of dental origin, by a program of dental health education in the elementary schools of the State.

VENEREAL DISEASE EXPERIMENTAL LABORATORY—Harold J. Magnuson, Sr. Surgeon, Medical Officer in Charge, Chapel Hill, N. C.

The Venereal Disease Experimental Laboratory, which functions as a field station of the U. S. Public Health Service and as the Department of Experimental Medicine at the School of Public Health, University of North Carolina, as of May 15, 1950, was able to occupy the new quarters provided by act of the State Legislature, H. B. 31, Chapter 1248, 1949.

As in the past, chief emphasis has been upon basic research in the field of venereal diseases, with various members of the staff providing institutional and consultation services within the School of Public Health, University of North Carolina. The type of work underway is best summarized in the following list of publications by staff members during the past year.

List Of Publications

1. Magnuson, H. J., Thompson, F. A., Jr., and Rosenau, B. J. The Effect of Subcurative Penicillin Therapy Upon the Rate of Development of Acquired Immunity in Experimental Syphilis. *Am. J. of Syph., Gonorr., and Ven. Dis.*, Vol. 34, pp. 219-226, May, 1950.
2. Tauber, H., Chymotrypsin Inhibition by Human Serum in Health and Disease, *Proc. Soc. for Exp. Biol. and Med.*, Vol. 74, pp. 486-489, July, 1950.
3. Doak, G. O. and Jaffe, H. H., Disproportionation of Aromatic Stiboso Compounds. II. Methods of Synthesis, *J. Am. Chem. Soc.*, Vol. 72, pp. 3025- 3027, July, 1950.
4. Jaffe, H. H., and Doak, G. O., Disproportionation of Aromatic Stiboso Compounds. III. Effect of Structure, *J. Am. Chem. Soc.*, Vol. 72, pp. 3027-3029, July, 1950.
5. Arnold, R. C., Wright, R. D., and McLeod, C., Reinfection in Experimental Syphilis in Rabbits Following Penicillin Therapy. IV. The Development and Character of Immunity in Latent Syphilis, *Am. J. of Syph., Gonorr., and Ven. Dis.*, Vol. 34, pp. 327-330, July, 1950. (This work was done at the Venereal Disease Research Laboratory, Staten Island. Dr. McLeod was a member of our staff at time of publication.)
6. Doak, G. O., The Heterocyclic Derivatives of Phosphorus, Arsenic, Antimony, Bismuth and Silicon by George Frederick Mann, *J. Am. Chem. Soc.*, Vol. 72, p. 4335, September, 1950. (Book review)
7. Thompson, F. A., Jr., Greenberg, B. G., and Magnuson, H. J., The Relationship Between Immobilizing and

Spirocheticidal Antibodies Against *Treponema pallidum*, J. of Bact., Vol. 60, pp. 473-480, October, 1950.

8. Thompson, F. A., Jr. and Magnuson, H. J., Studies in Increasing the Sensitivity of the Treponemal Immobilization Test for Syphilis, Am. J. of Syph., Gonorr., and Ven. Dis., Vol. 35, pp. 21-34, January, 1951.
9. Bucca, M. A., Thayer, J. D., Roberts, H. B., and Tager, B., Dehydrogenations Produced by the Reiter Spirochete, J. V. D. I., Vol. 32, pp. 6-12, January, 1951 (Work done by Venereal Disease Research Laboratory, Staten Island. Dr. Thayer is now a member of our staff.)
10. Tauber, H., Biophysical Research Methods by Fred M. Uber, The Chemist, Vol. 28, p. 71, 1951. (Book review)
11. Magnuson, H. J., Rosenau, B. J., and Greenberg, B. G., The Effects of Sex, Gastration and Testosterone Upon the Susceptibility of Rabbits to Experimental Syphilis, Am. J. of Syph., Gonorr., and Ven. Dis., Vol. 35, pp. 146-163, March, 1951.
12. Tauber, H., Synthesis of High Molecular-weight Protein-like Substances by Chymotrypsin, J. of Am. Chem. Soc., Vol. 73, pp. 1288-1290, March, 1951.
13. Doak, G. O., and Eagle, H., Correlation Between the Chemical Structure and Biological Activity of Arsenobenzenes. (In press — monograph form)
14. Tauber, H., The Enzymes by Sumner and Myrbaeck, Chem. and Engineering News. (In press—Book review)
15. Magnuson, H. J., and Thompson, F. A., Jr., Heterologous Strain Immunity in Experimental Syphilis, J. of Immunol. (In press)
16. Magnuson, H. J., Thompson, F. A., Jr., and McLeod, C. Relationship Between Treponemal Immobilizing Antibodies and Acquired Immunity in Experimental Syphilis, J. of Immunol. (In press)

HEALTH PUBLICATIONS INSTITUTE, INC.—Felix A. Grisette, Executive Director

Although an independent, non-profit corporation, Health Publications Institute, formerly known as Venereal Disease Education Institute, operates as a division of the State Board of Health. The State of North Carolina makes no appropriation whatsoever to the budget of the Institute except to provide quarters in the Old Armory Building. In exchange for these quarters, the Institute makes available a minimum of \$5,000 worth of its educational materials and staff services to the State Board of Health without charge. As a general rule, these education materials are passed on by the State Board of Health to local health offices throughout the State.

The capital funds of the Institute have been provided by grants from the Z. Smith Reynolds Foundation. Current operating expenses are derived from the sales of its education materials and services. The State Health Officer is a member of its board of directors and its executive committee.

What The Institute Does

1. The Institute develops, produces, publishes and distributes visual aids which are required by people engaged in every aspect of health work, such as books, leaflets, pamphlets, posters, displays, motion pictures, filmstrips and advertising materials.

2. A professional creative service such as writing, artwork, layout, and consultation is available for the use of health departments and related health agencies requiring such services.

3. Research and evaluation projects in all aspects of health education materials are carried on, not only to the end that its own materials may be adequately tested but independently for other health departments and agencies.

Although charged for to an extent that will make them financially self-supporting, these services are made available on a non-profit basis.

Financial Operations

Because the Institute during its early

years was primarily a publishing arm of the Venereal Disease Division of the United States Public Health Service, it received a modest subsidy from that source until July 1, 1949. The North Carolina State Board of Health provided quarters and some financial assistance until June 30, 1946.

The Z. Smith Reynolds Foundation, because of its interest in health and medical education, contributed annual gifts to the Institute until June 30, 1946. At this time, its annual gifts were terminated and replaced by a more generous but non-recurring capital revolving fund. Since July 1, 1949, except for the continued availability of the Reynolds Foundation capital revolving fund, the Institute has relied entirely on the sales of its materials and services for its financial support.

Some 1950 Accomplishments

During the year 1950, the Institute became more firmly established and more universally recognized as national headquarters for health educational materials. Circulation of its various health education media attained a total of 1,000-

000 copies per month. These materials were used by health departments in every American state and more than a dozen foreign countries. Approximately 200 different types of media were involved.

One especially noteworthy achievement during 1950 is the extent to which the Institute has become recognized as a publisher of proceedings of medical conferences. Notable illustrations of this publishing program are the National Conferences on Aging and the National Conference on Chronic Illness. The Institute has been designated as the official publisher of the proceedings of both these groups. The papers, reports and recommendations from these two major medical gatherings will be used widely among the medical profession throughout the United States. The Institute has also been designated as the official publisher of the proceedings and the other documents resulting from the Midcentury White House Conference on Children and Youth held in Washington, D. C. in December.

TOTAL PHYSICIANS IN U. S. AT ALL-TIME HIGH OF 209,040

There were 209,040 physicians in continental United States as of December 15, 1950, an all-time high record, according to the annual medical licensure report of the American Medical Association.

The report showed there were 6,002 additions to the medical profession in the United States and its possessions last year. Against this there were 3,794 deaths, making a net gain of 2,208 in the physician population. This compares with an addition of 5,866 physicians in 1949, and a net gain of 2,266 after allowing for 3,600 deaths.

Made public in the Journal of the A.M.A., the report detailed the medical licensure statistics for 1950. It was prepared by Dr. Donald G. Anderson of Chicago, secretary of the A.M.A. Council on Medical Education and Hospitals,

and Miss Anne Tipner, also of Chicago.

The report presented evidence of the high medical training rating of the medical schools of the United States, all 72 of which now are approved by the council.

Of 4,955 graduates of the existing United States schools who last year took state board examinations to practice medicine, 4,808 (97.1 per cent) passed. The 1949 passing percentage was 96.8 per cent.

Against this record, only 673 of the 1,248 graduates of other schools (53.9 per cent) successfully passed their examinations. The percentage by other medical schools was: Approved Canadian schools, 91.5; extinct schools, 93.3; foreign, 45.0; unapproved schools, no longer existent, 37.8; schools of osteopathy, 72.0. The overall passage was 5,481 out of a total of 6,203 examined, or 88.4 per cent. The 1949 percentage was 87.5.

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42



The Health Bulletin

Published by THE NORTH CAROLINA STATE BOARD OF HEALTH

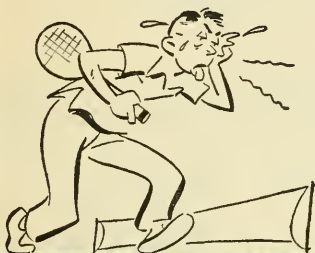
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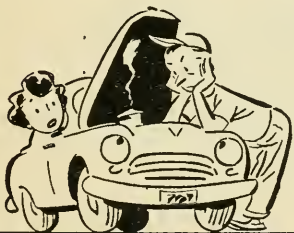
No. 7



Remember, too, it's always wise
Not to over-exercise



If you want vacation fun
Avoid an overdose of sun



If you don't fix up your car
Chances are you won't get far



To dodge disaster drop the notion
That you can swim across the ocean

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FREE HEALTH LITERATURE

The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

Adenoids and Tonsils	Hookworm Disease	Typhoid Fever
Appendicitis	Infantile Paralysis	Typhus Fever
Cancer	Influenza	Venereal Diseases
Constipation	Malaria	Residential Sewage
Diabetes	Measles	Disposal Plants
Diphtheria	Pellagra	Sanitary Privies
Don't Spit Placards	Scarlet Fever	Water Supplies
Flies	Teeth	Whooping Cough
	Tuberculosis	
Epilepsy, Feeble-mindedness, Mental Health and Habit Training		
Rehabilitation of Psychiatric Patients		
The National Mental Health Act		

SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, N. C.

Prenatal Care	First Four Months
Prenatal Letters (series of nine monthly letters)	Five and Six Months
The Expectant Mother	Seven and Eight Months
Infant Care	Nine Months to One Year
The Prevention of Infantile	One to Two Years
Diarrhea	Two to Six Years
Breast Feeding	Instructions for North Carolina Midwives
Table of Heights and Weights	Your Child From One to Six
Baby's Daily Schedule	Your Child From Six to Twelve
	Guiding the Adolescent

CONTENTS

	Page
Into the Hills	3
A Truly Great Physician	10
What General Practice Is	13

THE Health Bulletin



PUBLISHED BY THE NORTH CAROLINA STATE BOARD OF HEALTH

Vol. 66

JULY, 1951

No. 7

J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

INTO THE HILLS

(Case Finding Services of the Official Agency)

ROBERT F. YOUNG, M.D., M.P.H., F.A.P.H.A.

Halifax County Health Department

Halifax, North Carolina

Could it be that there is a need for a change in the attack against the age old enemy, tuberculosis, from that of a sweeping, motorized maneuver on the "vast plains" where tuberculosis at one time rode rampant to that of a gorilla type of warfare fought In The Hills, where this clever enemy possibly has retreated and where he must be fought and literally dug out from every rocky crevice. If so, then this gorilla warfare would require a new plan, new maneuvers and new techniques along with a more dogged patience and perseverance than has ever been demanded in the past.

Could it be that the once proud and haughty "Captain of the Men of Death" has now degenerated into an outlaw. Could it be that the Giant who once slew our stars of literature such as Thoreau, Brown, Keats and many other famous men of history, is now content to "bump off" his victims in the lower income brackets by sniper fire, under the cover of ignorance and from behind the rocky crags of superstition and thereby to reduce himself to a common renegade who seeks refuge by retreating Into The Hills.

There was a time when there seemed to be no defense against this relentless enemy, tuberculosis, until from out of

the Harz Mountains of Germany, God gave us Koch, and through him, revealed to us this redheaded killer, the tubercle bacillus, for the first time in history; until Roentgen gave us the x-ray and demonstrated to us directly the deadly work of this bacillus in the lung tissue; until Trudeau gave us the Little Red Cottage at Saranac and taught the value of rest; and until the many other weapons against this marauder of the microscopic world had been provided through the years with the adding of the modern Sanatoria, the present surgical techniques and judgment, and now the armamentarium of the modern miracle drugs.

It seems to the writer that the Official Agency in Halifax County has battled tuberculosis on the vast plains and now Into The Hills through four rather distinct phases of case finding procedures: (1) Tuberculin testing or relatively small groups of the population followed by x-raying of the positive reactors; (2) The opening broad attack in 1946 when the first mass x-ray survey (the fourth in the state) was made available to us; (3) An epidemiological type of x-ray survey of a selected group of the population in a selected area of the county; (4) The recent mass x-ray survey of January, February and March, 1951, our

second within five years (the first mass re-survey in the state), and from which the smoke of battle has hardly cleared.

The first phase of case finding activities was carried out with the best facilities at the disposal of the agency at the time and when tuberculosis was wide spread both as to population groups and as to the geography of the county. The five year median tuberculosis death rate in Halifax County during this first phase (1941-1945) was 58 per 100,000 population compared with a rate of 35 for North Carolina as a whole. During the early 1940's, there were many tuberculosis families in the county and the disease seemed to be more devastating in its attack on the family than at the present time. It seemed to be the usual thing then to find secondary cases of the disease in families where active cases existed. Thus, even though the disease was attacking on a broad front, out on the plains, the Official Agency had to be content with rather limited defense maneuvers within limited groups of the population.

Then came the remarkable development of the photofluorographic x-ray unit and with it the mass x-ray survey technique. When the four mobile x-ray behemoths, furnished by the State Board of Health and the United States Public Health Service, rumbled into Halifax County on that bleak day in December, 1946, together with the necessary professional, technical and clerical personnel, we in the health department, and our loyal cooperating agencies, felt a surge of confidence and felt, too, that the battle with tuberculosis had changed from a defensive to an all out offensive maneuver—tank warfare on the plains, if you please.

The intensive public health educational phase which preceded the mass x-ray survey of 1946 was planned to reach all groups of the population in all sections of the county—school children, industrial employees, agricultural workers—everyone fifteen years of age and older. Tuberculosis at that time was thought to be wide spread in most groups and in most areas in the county and, therefore, this type of educational cam-

paign was geared for the time.

Another important factor in connection with this first mass x-ray survey was the setting up of as complete and accurate a tuberculosis register as possible. The many records and files of the health department and in the physicians offices were searched diligently until all known cases of tuberculosis and their contacts were tabulated.

When this first mass attack on tuberculosis had been completed, our tuberculosis register groaned under the heavy addition of two hundred and forty-four new cases of significant tuberculosis in all stages; moreover, twenty new active cases were added to the county and state sanatoria, resulting in a discovery rate of .9 hospital cases per thousand citizens x-rayed.

Also, in connection with and immediately following this first mass x-ray survey, a weekly x-ray and fluoroscopic clinic was organized and has operated continuously since that time to which all suspected cases and all contacts of tuberculous families have been referred as indicated.

The back breaking work of visiting all of these tuberculous homes has been faithfully carried out by our nurses to make certain that the necessary laboratory work, tuberculin testing and other case finding activities were done, in addition to the x-ray diagnostic work.

This first mass survey in Halifax County resulted in the x-raying of fifty-eight per cent of the x-ray population, but the question that reared its ugly head immediately and that has haunted us until the present time has been, "what of the forty-two per cent who did not report for x-ray."

It has been our experience that the follow-up activities of a mass x-ray survey must be relentless, and the question as to when a suspected case or apparently arrested case of tuberculosis can be ultimately closed is certainly one most difficult to answer. We have followed many of these suspected cases since the original survey in 1946 only to have some of them become active in the past six months, or at a time when we were seriously considering closing

them, at least, relative to active follow-up work.

Following the mass survey, a gradual decline occurred in the death rate for tuberculosis for the total population, and we noticed that for some reason the "culprit" was not as willing, or even as anxious, to risk a fight in the open as he had been in the early 1940's. Along with this decline for the county, as a whole, we noticed a tendency for the renegade to make forays on certain isolated groups in the county. Was this a retreat "Into The Hills" and a change to gorilla warfare. In view of these findings, it was decided to "meet fire with fire" by planning an intensive, epidemiological type x-ray survey in this area for this particular group.

A review of the morbidity and mortality rates for tuberculosis in the various townships in the county over a three-year period revealed a significant number of cases and deaths occurring in a selected group of the population in this particular area of the county. As previously reported,⁽¹⁾ "Although this township represented only fifteen per cent of the total population, during the three years preceding the special x-ray survey (January, 1950), twenty-five per cent of all tuberculosis deaths in Halifax County occurred there. While only nineteen per cent of the negro population lived within this township, thirty-four per cent or approximately one-third of all negro deaths from tuberculosis in the county during the three year study period occurred in this area. Moreover, throughout the county as a whole, where the negro population constituted fifty-eight per cent of the total population, sixty-six per cent of the total deaths from tuberculosis were among negroes; while in the Enfield township during the same three-year period, eighty-eight per cent of the deaths from tuberculosis were negroes. During 1947 and 1948, one hundred per cent of the deaths from pulmonary tuberculosis in the Enfield township were negroes.

"A spot map, pin pointing the cases and deaths from this disease during 1947, 1948 and 1949, was used to localize

the principle tuberculosis problem in Halifax County within this township. From the spot map study, the tuberculosis problem localized itself still further within the township around seventeen distinct communities.

"In order to establish a base line to determine exactly the number of negroes living in these seventeen communities, the negro principals and teachers in this area were called upon to conduct a census.

"During the organizational and educational phases of this special epidemiological survey, all efforts were directed toward the particular group in question, namely, the negroes in a selected area of the Enfield township. We had no street banners, brass bands, window placards, posters or parades. Rather the individual approach was followed as strictly as possible. This type of approach was much more difficult than the mass approach, and I suppose that pioneer workers in public health would have referred to it as 'shoe leather' epidemiology.

"A negro principal in the area, it seems to the writer, hit the nail squarely on the head when he said, 'Doctor, my people are ignorant and superstitious. Many of them are afraid of this type of thing. Many of them do not receive newspapers, and, moreover, many of them do not even read. A lot of my people do not have radios. You will have to sit down with them in a personal appeal in order to persuade them to come in for these x-rays'. Therefore, every available member of the health department together with lay workers were dispatched to these various seventeen communities during the x-ray survey in order to make personal appeals to these people in an effort to get them in for x-ray. Appeals were also made to all land owners in this area for their co-operation in furnishing transportation for their tenants. Each of the seventeen communities was given a specific date on which to report to the x-ray bus."

This special survey resulted in the x-raying of 2,790 citizens, of which 2,107 were negroes, representing sixty-four per cent of all the negroes in the study

area. Forty-two cases of significant tuberculosis, including five hospital cases, were revealed, giving a discovery rate of 1.8 active cases per 1,000 citizens x-rayed, compared to less than 1 per 1,000 for the state as a whole and to .9 per 1,000 as discovered in the conventional mass x-ray survey conducted in the county in 1946.

Including seven additional hospital cases diagnosed immediately following this survey, and from this same group, a discovery rate of 4.3 hospital cases per 1,000 citizens x-rayed during and immediately following the study resulted. These seven cases did not report to the x-ray bus during the scheduled survey, in spite of all the intensive efforts of the workers to get them. These findings point up some of the difficulties of fighting "In The Hills."

The staff had hardly recovered from this epidemiological survey when the good news was received from Dr. William A. Smith, Director of the Section of Tuberculosis Control, State Board of Health, that five mobile x-ray units would be coming our way by the following January, 1951, for a second mass x-ray survey of the total population in the county. This, then, introduced us to the fourth and most recent phase of case finding for tuberculosis in Halifax County.

As a result of our studies in the special survey, we decided to apply as many of these epidemiological principles to the second mass x-ray survey as possible. Under the excellent direction of Miss Lula Belle Highsmith, Public Health Educator from the Section of Tuberculosis Control, State Board of Health, and with the capable assistance of her associate, Mrs. Mildred Page and, also Mrs. Velma Joyner from the North Carolina Tuberculosis Association, a splendid organizational and educational program was planned and executed, prior to the actual x-ray schedule. The following factors were emphasized throughout these preliminary stages: (1) All contacts of known tuberculosis cases must be x-rayed regardless of age; (2) Importance of x-raying all negroes, particularly those in the lower economic

groups; (3) Since mass x-ray surveys throughout the county had revealed the reservoir of active tuberculosis to be among older people, it was emphasized that all citizens forty-five years of age and older, and particularly those sixty-five years of age and older must be x-rayed; (4) Importance of all rural agricultural workers being x-rayed, since it had been noted that this group in the previous studies in North Carolina had shown a high incidence of tuberculosis.

In order to highlight the importance of the individual approach in the second mass x-ray survey, working committees for both white and negro groups were organized in each major community in the county rather than having one overall committee or group for the entire county. The four special factors mentioned above were stressed in all of the meetings; and, also, it was emphasized that the several working committees should continue their efforts throughout the entire x-ray schedule in order to sustain interest in the project.

Needless to say, the entire staff of the health department, particularly the nurses, were briefed again and again on the special epidemiological factors which we felt were of particular importance at the time of this survey.

Inasmuch as the previous mass x-ray study in this county, as well as the results of the x-ray surveys throughout the county, had been largely non productive of active reinfection tuberculosis among school children, no special schedules were made for the schools in the county; however, school children over fifteen years of age were urged to come in to the buses at the regular locations. Even though we did not include the schools in our x-ray schedule, an intensive educational program was conducted throughout the three school systems in the county during the entire study.

In setting up the x-ray schedule for the county, not only population densities, transportation and availability of power were considered, but the morbidity and mortality rates for the various communities were also used as important factors in determining the exact

x-ray location. All of the tentative sights were visited by representatives from the State Board of Health, Local Health Department and Power Companies before the final schedule, which included thirty-eight separate x-ray sites, was approved as final.

At least one Public Health Nurse was made responsible for the successful operation of each x-ray location, and each x-ray site was visited periodically during each day to make certain that the x-ray take for the day was holding up to expectations. When it was found that the x-ray total was falling considerably below the known x-ray population for a given area, special conferences were held and commando groups were sent into the field to visit the homes, churches and schools to make every effort possible to start the people moving toward the x-ray buses.

For example, in one location it was found that the first day's x-ray take had fallen considerably short of the expected total; where-upon, six nurses were sent into that area the following day to visit every home to learn why the people were not coming in. These nurses, visiting 714 homes during the day, heard some very interesting excuses as to why people had not responded. Here are a few of these reasons given the nurses during their commando operations:

"No man is smart enough to make something to see my lungs."

"Don't want the home broken if T. B. is found in the family."

"Anything free is half done."

"It is for poor people who can't pay their private doctor."

"The last time I took a picture on the x-ray unit, I got sick."

"In case the wife or husband is found to have T. B., he must go to the Sanatorium. What God put together, let no man put asunder."

"I heard that getting near the x-ray machine will make you sterile."

"I am too old to have T. B."

"You just want to put me in the Sanatorium and let me die."

"My wife won't let me get an x-ray."

"I am afraid the machine would electrocute me."

"I am a retired Veteran, they will give me a check-up when I want it."

"If I have tuberculosis, I don't want to know it."

"God didn't intend for anyone to be x-rayed or to take medicine."

"No tuberculosis has ever been in my family and I know I don't have it."

After learning the above reasons for not reporting for x-rays, of course, we were able to convince many of these people that these beliefs were without foundation and were able to motivate them to be x-rayed; however, there were still others who held steadfast to their life long beliefs and refused to be budged. This, I'm sure, highly pleased our cunning enemy, "T. B.," for surely these are the people who constitute his dwindling "happy hunting grounds."

Before presenting the provisional results of our second mass x-ray survey, perhaps it would be well to establish a base line with the present pertinent data⁽²⁾ relating to tuberculosis in the county as compared with North Carolina. As present in Table 1, the resident tuberculosis morbidity rate for 1950 in Halifax County was 87.2 per hundred thousand population compared with 90.4 for North Carolina as a whole, with the white rate of Halifax County being 59.4 compared with 71.4 for the State and with the negro rate being 108.4 against 139.3 for North Carolina. The official resident tuberculosis mortality rates (Table 2) for Halifax County and North Carolina in 1949 revealed a rate of 34.3 per hundred thousand for Halifax County with 23.9 for North Carolina, while the white mortality rate in the county was 19.8 compared with 13.1 for the State and with the negro rate in the county being 45.3 compared with 51.5 for the State. The number of cases of tuberculosis reported per death (Table 3) in 1950 in Halifax County was 2.7 compared with 4.7 for the State. The county rate was exactly double our rate for the previous year, as a result of the epidemiological survey in Enfield. Perhaps this small avalanche of new cases reported in 1950, as a result of the special survey, is what took some of the "starch out of the sails" of the second

mass x-ray survey just completed in the county.

When we finally folded our tents and prepared to leave the battlefield a few days ago, approximately 24,500 citizens had been x-rayed with 70 mm films, representing an increase of seventeen per cent over the mass x-ray survey of 1946. (The total increase in population during the past decade in Halifax County was only $3\frac{1}{2}$ per cent.) This x-ray total represents sixty-four per cent of the total x-ray population in the county as compared to the fifty-eight per cent take in the previous survey; however, using the more reasonable goal as followed by the United States Public Health Service of taking eighty per cent of the population fifteen years of age and older as a hundred per cent goal, we arrived at a more favorable figure of eighty per cent x-rayed. Russell Pierce⁽³⁾ at the 46th Annual Meeting of the National Tuberculosis Association in April, 1950, as a result of an analysis of eleven mass surveys which the United States Public Health Service had conducted, reported that these x-ray takes ranged from sixty-nine per cent to 118.7 per cent of the total x-ray population. Our take in Halifax County then for 1951 would fall in the neighborhood of the median for these eleven mass surveys reported.

Since we worked so hard in stressing the four epidemiological factors during the organizational and educational phases of the mass survey, it will be interesting, even though disappointing to us, to report our results in this respect. In 1946 (Table 4), the number x-rayed under forty-five years of age was seventy-seven per cent and in 1951 was seventy-six per cent of the total, while the age group forty-five years and older represented twenty-three per cent of the total in 1946 and only one per cent better in 1951 with twenty-four per cent. The sixty-five years of age and older group in 1946 constituted three per cent of the total while in 1951 was four per cent. Although percentage-wise, this one per cent increase looks very anemic, the actual increase in numbers x-rayed in this stubborn age group sixty-five years

of age and older was 365.

The racial breakdown (Table 5) of the total number x-rayed with 70 mm films was fifty-three per cent white in 1946 and fifty-five per cent in 1951, compared with forty-seven per cent for negroes in 1946 and forty-five per cent for negroes in 1951. Again, it appears in this mass x-ray survey that our extra efforts to get a larger percentage of negroes x-rayed was somewhat in vain.

The total number of hospital cases (Table 6) discovered in the recent x-ray study was fifteen, including fourteen colored and one white, compared with a total of twenty for the mass survey in 1946, including fifteen negro and five white. The 1951 survey produced a discovery rate of .6 per thousand citizens x-rayed compared with .9 per thousand in 1946 and 1.8 per thousand in the epidemiological survey in 1950.

Nine of the fifteen hospital cases were contacts from tuberculous families. Some of these contacts reported to the x-ray buses, after having refused to be examined in our regular fluoroscopic clinic for years. It is interesting to note, too, that four of the fifteen cases were from Enfield which again gave this area the highest discovery rate.

Only one of the fifteen cases was a school child discovered through routine examination of school children over fifteen years of age. One of the cases was a child, age 12, who came in as a contact of a recently discovered case of active tuberculosis, and as a result of a written notice from the health department to report for x-ray.

The lone white hospital case discovered was a male, textile employee, over forty-five years of age, while thirteen of the fourteen negroes were from rural, agricultural areas. Of the negroes, nine were under forty-five, and five were over forty-five years of age.

The provisional data (14 x 17 films) (Table 7) of this recent mass x-ray survey revealed a decrease in the number of males found to have definite tuberculosis in the age group under forty-five, with an appreciable increase from thirty-five per cent in 1946 to forty-seven per cent in 1951 in the forty-five

years of age and older group. The females found to have definite tuberculosis revealed no appreciable change in the group under forty-five years, but a decrease was noted from twenty-six per cent of the total in 1946 to 21.5 per cent in 1951 in the forty-five years of age and older group.

Regarding the racial breakdown (Table 8), the percentages for negroes with definite tuberculosis in the three age groups, under forty-five, forty-five and older, and sixty-five and older remained rather constant in 1951 as compared to 1946, with only a two per cent increase noted in the forty-five years of age and older group. The white percentages revealed a more definite decrease in the under forty-five years group and a definite increase in the forty-five years and older group. Those over sixty-five years remained essentially constant in 1951 as compared with the 1946 findings for both races.

The writer again wishes to emphasize that these data are entirely provisional and certainly more time is needed for a more accurate analysis and evaluation of the survey just completed.

To summarize, in the recent mass x-ray survey, although nine times as many citizens were x-rayed throughout the county as in the epidemiological survey, only three times the number hospital cases were discovered. Putting this in a dollars and cents language, we find that the cost per case discovered in the epidemiological survey was \$300.00* as compared with over \$1,300.00* per case for the 1951 mass survey. With the dollar rapidly becoming a mere shadow of his former self, certainly very careful consideration needs to be given to the cost aspect of case finding in tuberculosis control.

From our meager experiences in tuberculosis case finding procedures in Halifax County, the writer is of the definite opinion that more emphasis needs to be placed on careful preliminary epidemiological studies so that the

disease can be more accurately localized to to age, sex, racial, occupational, socio-economic and all other pertinent factors in order for the case finding activities to be properly concentrated in these "target areas." It appears at this time that there is a very definite need for a change in the case finding battle against tuberculosis, using a new type of strategy, designed to follow and destroy the enemy where he has retreated into restricted groups and areas, or "Into The Hills."

**Resident Tuberculosis Cases By Color
With Rates Per 100,000 Population:
North Carolina and Halifax County,
1950 (Official Data)**

TABLE 1

	North Carolina		Halifax County	
	Number	Rate	Number	Rate
Total	3,653	90.4	51	87.2
White	2,072	71.4	15	59.4
Other	1,581	139.3	36	108.4

**Resident Tuberculosis Deaths By Color
With Rates Per 100,000 Estimated
Population: North Carolina and Halifax
County, 1949 (Official Data)**

TABLE 2

	North Carolina		Halifax County	
	Number	Rate	Number	Rate
Total	956	23.9	20	34.3
White	377	13.1	5	19.8
Other	579	51.5	15	45.3

**Resident Tuberculosis Cases And Deaths
With Number Cases Per Death:
North Carolina And Halifax County,
1944-1950**

TABLE 3

Year	Number Cases		Number Deaths		Cases per Death	
	North Carolina	Halifax County	North Carolina	Halifax Co.	North Carolina	Halifax Co.
1944	1,804	33	1,165	31	1.5	1.1
1945	3,392	59	1,197	28	2.8	2.1
1946	3,466	49	1,104	23	3.1	2.1
1947	3,591	244	1,056	29	3.4	8.4
1948	3,274	36	908	21	3.6	1.7
1949	3,402	25	956	20	3.6	1.3
1950*	3,653	51	780	19	4.7	2.7

*Does not include salaries and travel or full time personnel of health department. April, 1951.

*Data Provisional

**Total 70 MM—Survey—Percentage By
Age Halifax County, 1946 and 1951**

TABLE 4 (Provisional)

	1946	1951
Under 45	77	76
45 and Older	23	24
65 and Older	3	4

**Total 70 MM—Survey—Percentage By
Race Halifax County, 1946 and 1951**

TABLE 5 (Provisional)

	1946	1951
White	53	55
Negro	47	45

**Hospital Cases Confirmed—Age, Sex and
Race (14 x 17 Films) Halifax County,
1946 and 1951**

TABLE 6 (Provisional)

		Under 45		45 and Older		65 and Older	
		1946	1951	1946	1951	1946	1951
Totals		10	9	10	6	6	4
White	M				1		
	F	3		2		1	
Colored	M	3	5	7	1	5	1
	F	4	4	1	4		3

**Definite Tuberculosis—Percentage By
Age And Sex Halifax County,
1946 and 1951**

TABLE 7 (Provisional)

	Under 45		45 and Older		65 and Older	
	1946	1951	1946	1951	1946	1951
Totals	39	32	61	68	20	19
Male	18	13.5	35	47	13	11
Female	21	18	26	21.5	7	8

**Definite Tuberculosis—Percentage By
Race And Age Halifax County,
1946 and 1951**

TABLE 8 (Provisional)

	Under 45		45 and Older		65 and Older	
	1946	1951	1946	1951	1946	1951
Totals	39	32	61	68	20	20
White	20	15	37	42	9	8
Negro	19	17	24	26	11	12

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A TRULY GREAT PHYSICIAN

By WILLIAM H. RICHARDSON

State Board of Health, Raleigh, N. C.

Another truly great North Carolina Physician has laid down the working tools of his profession, to rest awhile, among some of those with whom he formerly labored. Dr. William de Berniere MacNider passed into the Great Beyond, from his native town of Chapel Hill. He was seventy years old, and the end followed a brief illness.

There are those in every profession who stand out like mountain peaks, silhouetted against a background of wisdom and experience. Dr. MacNider truly was one of these. His learning was great,

but his love for the humanity he served was greater. His reputation as one of the great medical scientists of his time was not contained within any geographical boundaries. He belonged to no section, but to humanity. Dr. MacNider's life and service were a part of the history of the University of North Carolina. Born in Chapel Hill, June 25, 1881, he was the son of the late Virginius St. Clair and Sophia Beatty (Mallett) MacNider. In addition to the University of North Carolina Medical School, he studied at the University of Chicago,

and Western Reserve University. He received honorary degrees from the Medical College of Virginia and from Davidson College. At various times, he was special lecturer at Columbia University, George Washington University School of Medicine, The Medical College of Virginia, the Mayo Foundation, and Duke Medical School.

Retired Last Year

Dr. MacNider retired from teaching in June, 1950, after completing fifty-one years of service. A graduate of the University Medical School in 1903, he began teaching while still an undergraduate, in 1899, as assistant in biology. He was assistant in anatomy, from 1900 until 1902; demonstrator in clinical pathology, from 1902 to 1905, and was Professor of Pharmacology and Bacteriology, from 1905 until 1911. In his Alma Mater, Dr. MacNider established the first Department of Pharmacology in the South. This was in 1905. He was appointed Kenan Professor of Pharmacology in 1918. In this field, he ranked as one of the greatest research men in this country, and became internationally known. He formerly was head of the Age Research Society of London. As a member of the Committee on the nutritional aspects of the National Research Council, this distinguished North Carolina physician directed studies in a Chicago Hospital, in an attempt to find the character and the amount of diet, and the proper vitamin supplement for ageing and aged individuals who are mentally disturbed.

Dr. MacNider gained worldwide recognition, as a result of discoveries he made in diseases of the kidney, particularly Bright's. During the First World War, his studies were used as the basis of treatment for nephritis among the armed forces. As a result of research carried on for thirty-three years, showing the effect of injury to tissues cells, he was awarded the George M. Kober medal, which is one of the highest awards in medical science, by the Association of American Physicians. In more than a half century, the Association has awarded this medal only nineteen times.

Was Internationally Known

Although North Carolina was the home base of this internationally known medical scientist, his experience and influence extended to all sections. He served as officer and Committee Chairman in the leading medical societies of America. His reports of laboratory investigations have appeared in medical periodicals for many years. In 1931, the New York Academy of Science awarded him the Gibbs Prize. A year later, the Southern Medical Association presented him with its achievement medal. The Medical College of Virginia gave him an honorary degree of Doctor of Science, in 1933, and during the following year, Davidson College made him a Doctor of Laws.

Dr. MacNider was President of the American Pharmacological Society; member of the Executive Council of the Federation of Societies for Experimental Biology; representative of the Nation's Pharmacologists on the International Board of Twelve Medical Examiners; President of the North Carolina Medical Society; Member of the International Research Council; Member of the National Academy of Sciences, and of the American Philosophical Society.

There have been and will continue to be many verbal and written tributes to this distinguished medical scientist, but these will be merely the echoes from the volume of verbal and written tributes paid him while he still lived and labored in behalf of humanity. He was honored while he yet served, and not, belatedly, after he had passed into that land where there is no need for the working tools of the medical profession.

In his fifty-one years of association with the University, as physician and teacher, Dr. MacNider grew in favor among all with whom he was associated, and became affectionately known by his friends as 'Dr. Billy.' The 1951, Yackety-Yack was dedicated to him and to Dr. William C. Coker, Kenan Research Professor of Botany Emeritus. Concerning both men, the dedication paragraph had this to say: "To these men, who have so given of their lives, energies, and devotions, we humbly dedicate this book,

that it might serve as a reminder to succeeding generations of students here that, though the efforts of such men, has come the greatness of Carolina." When he retired last year, *Time Magazine* honored Dr. MacNider by describing him as one of the world's top authorities on diseases of the kidney and the effects of age and injury on cell tissue. At a testimonial dinner, last June, in his honor, Dr. Alfred N. Richards, of Philadelphia, said of Dr. MacNider's work that it was known the world over for the light it has thrown on the action of various therapeutic and toxic agents, such as uranium, chloroform and mercury. The speaker continued: "No one of his friends thinks of Dr. MacNider simply as an inspired teacher and faithful investigator. They **admire** him for these reasons; they **revere** and **love** him for other qualities—simplicity, truthfulness, humorous understanding of the foibles, as well as the virtues, of human beings—his own included. He has a genius for friendship."

The facts upon which this article is built were taken from biographies appearing in the State press, following Dr. MacNider's death. The late Edward Kidder Graham, while he was President of the University of North Carolina, once made the statement to members of the press attending a reception at the Executive Mansion, in Raleigh, that the best and most understandable English in the world is found in the columns of our newspapers. It also might be stated that the newspapers of today, with their current facts and figures, will become the history of tomorrow, to which students will resort for information concerning the age in which we are living.

His Work Will Live

Dr. MacNider's accomplishments in the field of medicine will **continue** to be not only **useful**, but **inspirational**. His findings have become a **permanent part** of the book of medical knowledge. The discoveries he made, as a result of long, hard work, constitute a distinct contribution to medical practices. His greatest beneficiaries, however, are not those **with whom** he worked, but those to

whom they minister. It would be well for the public to study the lives of our great medical scientists, as well as to reap benefits of the discoveries they have made and are making. We **all** know, for example, that we can be immunized against smallpox, through vaccination. How many know that it was Edward Jenner who discovered and put into practice the principle of vaccination? His knowledge came through a milk maid. It would be well for each person reading this article to read about Jenner and others whose discoveries have prolonged human life.

We know that a person who has been bitten by a rabid dog may escape hydrophobia by taking the Pasteur treatment. There are many who do not think of Pasteur as a personality, but a **technique**. Everyone is familiar with pasteurized milk, but how many know that it was Louis Pasteur who discovered that heat would kill harmful bacteria in milk? **This** noted scientist made many other discoveries which not only have prolonged human life, but saved producers of silk worms, poultry and animals millions of dollars. The life of Louis Pasteur was all the more remarkable because of the fact that some of his most important discoveries were made after his recovery from a severe stroke of paralysis.

Another scientist who made a valuable contribution to the art of prolonging life was Joseph Lister, the father of aseptic surgery. It has been said of him that he applied principles which were discovered by Pasteur.

Many of our great scientists were, themselves, sufferers from various ailments. Yet, their purposes were not selfish, but dedicated to humanity. No worthwhile medical discovery is sold for money, but it is **given** to the public through physicians in all fields. Dr. MacNider, to whose memory this article is dedicated, made many important observations during his long career in medical research. He, no doubt, had his moments of discouragement, but his measure of success made him a valuable contributor to humanity. We must not think of scientific discoveries wholly

in the past tense. These are being made, day by day. But to be useful, such discoveries must be more than theoretical. They must be operative. Moreover, they must be both provable and proved.

Ranked With The Great

Each generation has given to the world many discoveries to make the people happier, but possibly none has made more effective contributions than the present. This can be said because of such men as Dr. MacNider and others, whose lives have been dedicated to the noble purpose of relieving pain, mending crippled individuals and prolonging human life. With the possible exception of the religious ministry, there is not and never has been a higher calling on the face of the earth than that of the medical doctor, no matter in which par-

ticular field he has chosen to work.

There are two broad fields of medicine—curative and preventive. Each occupies an extremely important place. The two are interdependent. Without preventive medicine, additional thousands would die annually. But for curative medicine, the same would be true. It is often the case that infection cannot be prevented and that its approach cannot be detected. Curative methods, however, have been discovered to combat practically all types of infection. On the other hand, methods have been discovered for the prevention of many crippling diseases. And so we see the inseparable twins of medicine—curative and preventive—walking arm in arm, and working hand to hand to make this a healthier and happier world to live in.

WHAT GENERAL PRACTICE IS*

The essence of general practice is to live amongst your patients as a cog in the whole machine, knowing them so well in health and in sickness, and from birth until death, that although one may keep—and should keep—a clinical record of their illnesses, and although one should examine the patient as a routine, the patient is so familiar to his family doctor that he, of all people, can be in the best position to give an accurate diagnosis, prognosis and treatment most suitable to the patient's way of life.

So proclaims a member of the Royal Society of Medicine,¹ and he goes on in like vein.

Whereas the patient in hospital is like an animal in the Zoo, living under conditions which are artificially made—as near normal as possible of course, but nevertheless out of his natural environment—the general practitioner is in the position of the big-game hunter

studying the patient in his natural environment, the jungle, his lair, in the wild herd, in his home.

There is a great deal more to a case in hospital than you can find out by examining that case in hospital. The essential causes and tendencies of health or disease in an individual are in his heredity and his environment; his parents, his family, his home, his work, his tastes and recreations. And we shall not get the picture of these most important factors by merely asking the patient about them; we shall obtain only his very limited impression of them. General practice involves knowing all these things, and applying them to the case in point. The individual will react to stress in an individual way. General practice means such a knowledge of one's patient that one can assess the type of stress to which he is likely to be subjected, and the way in which he is most likely to react or break down.

The general practitioner should regard the specialist departments as helps to his treatment of the patient, rather than as places to which he sends his patient and then be relieved of all fur-

*Editorial From Southern Medicine and Surgery.

1G. O. Barber, M. D., in *Proc. Royal Soc. of Med.* (London), Feb.

ther responsibility.

A third aspect of general practice is the responsibility for a patient, even sometimes against his will; a responsibility both for him and his family, in health and in sickness, from birth until death. In general practice a visit to a patient does not involve just that patient's symptoms. It involves acute anxiety on the part of the family; if you like, a temporary mental illness, an anxiety state, of all concerned. It is part of general practice to relieve this also in such a way that there may be no lasting effect. One has to handle birth and death, in which the principal player is usually the least concerned.

In chronic cases it is often said that nothing can be done. But general practice consists in doing something to make life as bearable as possible for the patient, and to make him live as comfortably as he can with his disability.

Many people seem to think that the bulk of general practice consists of trivialities. There is no case, however trivial, which is completely without interest. Careful attention to hundreds of apparently trivial cases is more than rewarded as one catches the earliest possible stage of serious illness. Much becomes almost a reflex action in time, so that one has a tentative diagnosis sometimes, arrived at between the time that the patient opens the door, and when he sits down in the chair.

Dr. J. D. Simpson, in the discussion:

A young man, aged 22, with an excellent athletic, Service, and scholastic record, reported sick on a Monday saying: "Doctor, I have a strained heart. At the end of the course we rowed on Saturday I felt awful." He was the only son of devoted parents. His heart and lungs were normal, b. p. 120/80; exercise tolerance test good. Saturday he had been to a 12-1 lecture, had lunch in college and the boat was out at 1:45 p. m. He had had a long wait at the start of a 20-minute row and it was a bitterly cold day.

My advice was to go straight down to the river, have a light outing and then return to the VIII next day. He has rowed and been fit ever since.

A cardiological opinion would have taken two to three days to arrange, and by the time the boy had been examined he would have been well on the way to a cardiac neurosis and would have missed his place in the VIII—a very important matter to him.

I hope every general practitioner into whose hands this journal comes will take this editorial to the editor of his local paper, and request publication in part and editorial comment. You might well, also, call attention to the other editorial in this issue on the general practitioner; and take along to your paper your copy of *S. M. & S.* for December, 1950, and call attention to the editorial on pages 408 and 409.

It is wonderful to have a great British specialist who does practically all his work in office or hospital say that "the family doctor can be, of all people, in best position to give an accurate diagnosis, prognosis and treatment;" and compare treatment in hospital with treatment in the home, much to the advantage of the latter.

FROZEN, CONCENTRATED ORANGE JUICE AS NUTRITIOUS AS FRESH FRUIT

Approximately 98 per cent of the vitamin C in fresh oranges can be retained in the frozen, concentrated juice if proper methods are used, a report to the Council on Foods and Nutrition of the American Medical Association revealed.

The report, published in the *Journal of the American Medical Association*, said "the frozen concentrated product can be as valuable from a nutritive content as is fresh orange juice."

It was pointed out that fresh oranges of good quality picked at the proper time were essential to insure a high vitamin C content in the concentrated product. The report said:

"For example, studies indicate that the vitamin C content of fresh oranges may show considerable variation. This is due in part to seasonal influences. In general, fruit picked in midseason tends to be higher in vitamin C than

does that picked early or late in the season. Other factors, including variety of fruit, degree of ripeness and condition of the soil, also significantly affect the vitamin C content of the fresh fruit."

"The danger of vitamin C loss," the report continued, "is most likely to occur as a result of improper handling or storage in the home. For example, if after reconstituting the juice is allowed to stand in open containers at room temperature, appreciable losses will occur. However, if the reconstituted juice is placed in the refrigerator at 40 degrees F., vitamin C losses will be negligible. Ideally, the juice should be consumed as soon as possible after reconstituting to obtain maximum vitamin C value."

In the same issue, a Journal editorial said in part:

"When frozen foods are selected, prepared and stored (whether at home or commercially) according to the best of currently available scientific knowledge, they can compare favorably in nutrient content and flavor with the fresh product.

"Much of the loss of the water-soluble vitamins and other water-soluble constituents of vegetables preserved by freezing, canning or dehydration occurs as the result of the preliminary blanching or precooking to which they are subjected . . . Blanching in water frequently reduces the ascorbic acid (vitamin C) content of vegetables as much as 16 per cent. Such losses tend to be minimized when the blanching time is shortened by the use of boiling water and the same water is used repeatedly. . . .

"Another important factor in the preservation of vitamins and flavor is the rate of freezing . . . Observers have found that eight to 12 hours may be used for freezing without significant impairment. This means the products frozen in home freezing cabinets can be nutritious as those obtained by quick freezing. The freezing time should not be increased beyond 12 hours, however, because of deteriorative changes that may occur if the temperature is not

dropped rapidly enough throughout the entire package. . . .

"Storage at 0 degrees F. seems quite satisfactory, at least when the storage period is a year or less. Losses (in nutrient value) become much greater if the temperature is allowed to rise to 10 F. or is allowed to fluctuate between 0 and 20 F. At these temperatures peas lose 50 per cent of their original ascorbic acid in one year and show color deterioration."

ISSUES WARNING ABOUT NEW, POISONOUS INSECTICIDES

Anticipating an increase in the use of insecticides this season, the American Medical Association editorially issued a warning about the poisonous nature of these products.

The editorial, carried in the Journal of the A.M.A., pointed specifically to two of the newer substances—aldrin and dieldrin. These, as well as the other insecticides, are expected to be used widely, especially in the southern and cotton-raising areas, it said.

Aldrin and dieldrin are available in either powdered form or as emulsified concentrates. The powdered products can be absorbed by inhalation, through the skin or by swallowing. The concentrates or emulsions also are readily absorbed by the body because of the solvents used in their preparation.

"The danger of accidental poisoning by inhalation is unknown," the editorial added, "but intravenous toxicity, which is possibly the closest measure of potential danger from respiratory exposure, is three to six times that of DDT."

Aldrin and dieldrin act primarily on the central nervous system or the gastrointestinal system. Taken by mouth—whether by accidental swallowing or eating produce which has been sprayed recently—they probably will cause nausea and vomiting, hyperirritability and convulsions. The convulsions may or may not be separated by periods of depression. Death may result.

The editorial pointed out that no authentic cases of chronic intoxication due to these two products have been

reported to date, but headache, general discomfort, sudden unexplained loss of weight and loss of appetite would be significant symptoms. It further was pointed out that in chronic poisoning there may be a latent period of several weeks between the last exposure and the development of symptoms.

It was advised that if the skin has been contaminated with the chemicals, the area should be washed thoroughly with soap and water. Contaminated clothing should be removed immediately and washed thoroughly.

At present there is no universal accepted method of treatment for this type of poisoning. Treatment depends to some extent on the symptoms and could include barbiturate therapy, dextrose, amino acids and oxygen.

REPORT SHOWS THOROUGH COOKING OF PORK CUTS DOWN ON DISEASE

Thorough cooking of fresh pork can help to reduce materially the incidence of trichinosis, an infection from diseased pork, it was shown in a report made public today by Dr. Rodney R. Beard of San Francisco.

Dr. Beard, writing in the *Journal of the American Medical Association*, credited that as one of the factors in an apparent two-thirds reduction in the incidence of trichinosis in San Francisco since 1936.

Trichinosis is caused by *Trichinella spiralis* worms which sometimes are found in pork. The worms lay eggs in the human intestinal tract. The embryos work their way into muscles, especially the diaphragm, where they develop. Diarrhea, nausea, colic and fever are the usual early symptoms of the disease, followed later by stiffness, pain, swelling of the muscles, fever, sweating and insomnia. The seriousness of the infection depends on the degree to which the pork has been infected. Severe infections may cause death.

Dr. Beard cited a 1936 study in San Francisco of a random sampling of 200 human diaphragms taken at autopsy.

Trichinosis worms were found in 24 per cent of the organs. A more recent study of 161 diaphragms, also a random sampling, showed only 8 per cent were infected—a decrease of two thirds.

Three factors were listed by Dr. Beard as possible agents responsible for the decrease.

He first pointed out that federal, state and local regulations now assure adequate processing of pork products intended to be eaten without cooking. In San Francisco, for example, stringently enforced rules by the local Department of Public Health provide for adequate salting and drying of Italian style salami, an uncooked product, or possible prior killing of trichinae by freezing.

Another factor he mentioned was the reduction in the proportion of pork from garbage-fed hogs. Wartime scarcity of labor, difficulties of transportation and other factors, he explained, made feeding garbage to hogs unprofitable and many local establishments of this kind went out of business. He cited a Department of Agriculture report showing widespread reduction of infections in hogs. From 1934 to 1939 the infection rate was 3.32 per cent as compared with the 0.81 per cent in a recent study.

A.M.A. COUNCIL SAYS ALUMINUM UTENSILS NOT INJURIOUS TO HEALTH

The use of aluminum cooking utensils in no way is injurious to health, according to a statement issued by the Council on Foods and Nutrition of the American Medical Association.

The position of the council was made known as a result of periodical rumors that foods cooked in such utensils affect health because of injurious substances imparted by the vessel, according to Dr. James R. Wilson of Chicago, secretary of the council.

The driver who doesn't mind being passed

Will still be PRESENT when passers are PAST!

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Caswell Square about fifty years ago. Present State Board of Health Building on left. New State Board of Health Building to be constructed on Caswell Square near corner of McDowell and Lane Streets.

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The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

Adenoids and Tonsils	Hookworm Disease	Typhoid Fever
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The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, N. C.

Prenatal Care	First Four Months
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The Prevention of Infantile Diarrhea	One to Two Years
Breast Feeding	Two to Six Years
Table of Heights and Weights	Instructions for North Carolina Midwives
Baby's Daily Schedule	Your Child From One to Six
	Your Child From Six to Twelve
	Guiding the Adolescent

CONTENTS

Military Preventive Medicine A Keystone Of Military Strength.....	Page 3
Poliomyelitis	12

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JOHN H. HAMILTON, M.D., Editor

MILITARY PREVENTIVE MEDICINE A KEYSTONE OF MILITARY STRENGTH*

JAMES STEVENS SIMMONS, S.B., M.D., Ph.D., Dr.P.H. S.D. (hon.)

Brigadier General, U. S. A. (Retired)
Dean, Harvard School of Public Health,
Boston, Mass.

If I were starting my military career today, I should like someone to give me a clear picture of the objectives of the Medical Service of the Army and to indicate the main channels through which the Medical Service and all its personnel can work most profitably for the achievement of these objectives. I would want this type of orientation to help me in shaping my own philosophy and all my future actions as a military surgeon.

The Mission of the Medical Department

Briefly stated, the responsibility of the Medical Service is to keep the soldier on his feet and fit to fight. This is a big order, and the achievement of this mission requires broad leadership, clear vision, careful planning, and aggressive action by a great variety of specialists. The major approaches to the accomplishments of this mission are clinical and preventive.

The Clinical Approach is to organize adequate personnel and facilities with which to salvage the sick and wounded and restore them to health. A modern army must provide effective first aid and rapid evacuation for the wounded. It must have modern facilities, adapted to combat conditions, so that the sick and wounded will receive the best pos-

sible medical care and hospitalization. This must be followed, when feasible, by modern rehabilitation to restore the soldier to a state of physical and mental fitness in the shortest possible time. To accomplish this important portion of the Medical Service's mission requires an enormous organization and large numbers of specialists in every aspect of curative surgery and curative medicine.

The Preventive Approach to the conservation of fighting manpower is the even greater obligation of the Medical Service to protect as many soldiers as possible against sickness or injury. This more constructive approach is made through the numerous activities now included under the term "military preventive medicine." From the viewpoint of military efficiency, it is more desirable to keep the well soldier well than to provide the expensive and complex facilities required to restore the sick soldier to health. For this reason, disease prevention should logically be the primary objective of the Medical Service.

It is therefore important that every member of the military establishment—not only the personnel of the Medical Service, but all members of the combat

*Reprinted by permission from the United States Armed Forces Medical Journal

arms—should adopt the preventive attitude toward disease. Every soldier should keep in mind the basic truth that “an ounce of prevention is worth a pound of cure” and he should be familiar with the basic principles that can be applied for his protection against disease.

According to a newspaper announcement several weeks ago, an epidemic of typhus was raging among the Chinese troops in Korea. Such a report 10 years ago would have caused us much concern. Today there is no reason for alarm because we are armed with effective preventive measures developed in the last war with which American troops can be protected against this ancient scourge. We now have an effective typhus vaccine and an even more effective louse powder. This incident serves to point up the practical importance of military preventive medicine today. It also emphasizes the fact that this young specialty is not static but is vigorous, rapidly growing, and has infinite possibilities for further development; this is important because the nation now faces the most serious threat for its entire existence. We must immediately take steps to strengthen our total health defenses in order to conserve both fighting and working manpower.

Since 25 June 1950, the Armed Forces have been faced with the problem of maintaining the health of our troops fighting in Korea and at the same time planning for the prevention of disease among the large forces now being mobilized and trained to meet the threat of a third global war. The civil population is faced with the equally difficult problem of strengthening its program of preventive medicine and public health to conserve industrial manpower and to operate the expanding health departments required for civil defense. It is therefore important to take stock of the nation's total health facilities—both military and civilian—in order to make sound plans for the present emergency.

Military Preventive Medicine

The aim of preventive medicine is to prevent physical and mental disease.

In civilian medical schools the term “preventive medicine” is commonly restricted to the prevention of disease in the individual; the term “public health” is applied to the prevention of disease and the conservation of health in communities or other large aggregations of people, such as States or nations. “Military preventive medicine” applies to large groups of fighting men and therefore it is comparable to civilian public health. Since the beginning of history every intelligent military leader has been aware of the hazards of disease and has realized the need for some method which would protect his troops against sickness. This was true even of the barbarians who reluctantly abandoned their sick and wounded fighting men on the battlefield.

An early example of an attempt to do something about the American soldier's health is afforded by an order, issued by General Washington at Peekskill in the Revolutionary War, entitled: “Instructions for Soldiers in the Service of the United States Concerning Means of Preserving Health.” At that time there was no knowledge concerning the transmission of infectious diseases and these instructions emphasized cleanliness, camp hygiene, and the disposal of feces. These activities are still important to good health, but we now know that they are not enough to prevent disease. Therefore, it is not surprising that General Washington's troops were decimated by numerous epidemics. Conditions were no better in the War of 1812, the Mexican War, or in the Civil War. The commanders and medical officers of those days must have been deeply frustrated at their inability to control the diseases which have always accompanied war.

Development of basic knowledge.—In the period following the Civil War, the foundation for preventive medicine was laid. From 1860 to 1900 the medical discoveries of Pasteur, Koch, and Lister, and their associates and followers produced a great reservoir of specific knowledge about many of the micro-organisms which cause disease. It is fortunate that during that time a member of the

Regular Army Medical Corps, George M. Sternberg, became interested in the potentialities of these new discoveries. Having served in the Civil War, and having seen the crippling effect of the military diseases of that period, he knew that they could not be controlled by any method available at that time. Excited by the promise of these new discoveries, he undertook pioneer studies in the newly emerging sciences of bacteriology and protozoology, and discovered the pneumococcus. He published the first American textbook on bacteriology in 1884, and he was later referred to by Robert Koch as the "father of American bacteriology."

Sternberg served as Surgeon General from 1893 to 1902 and during this period he initiated an extensive program in military preventive medicine. Following the bitter experience of our troops with typhoid, dysentery, and yellow fever during the Spanish-American War, he organized special Army research boards for the study of diseases in our newly acquired tropical possessions. His broad vision made possible the important researches of Major Walter Reed on yellow fever in Cuba—researches which influenced the later work of General Gorgas on sanitation in Panama. It led to Colonel Ashford's studies which showed that malignant Puerto Rican anemia was caused by massive hookworm infestation. This was followed by the world-wide hookworm control program of the Rockefeller Foundation. It provided for the investigations of Colonel Strong on dysentery, plague, cholera, and other tropical diseases in Manila, the researches of Colonel Craig on malaria in the Philippines and elsewhere, and for the work of Colonel Siler and others on dengue. It undoubtedly influenced the later work by General Darnall who gave to the world improved methods for the chlorination of city water supplies, and the researches of General Russell who developed the triple typhoid vaccine which has been used successfully by the Armed Forces in two world wars. Sternberg's broad concept of the importance of preventive medicine influenced all of these con-

tributions. It also stimulated other Army, Navy, and civilian workers to conduct researches along similar lines which have added much to the development of both military and civilian preventive medicine.

As evidence of General Sternberg's leading role in the country's medical and health activities of his time, it is noteworthy that he served as President of the American Medical Association and as President of the American Public Health Association. He was also pioneer educator in the new field of military and civilian preventive medicine. When he became Surgeon General in 1893, one of his first acts was to organize the Army Medical School in Washington to provide facilities for research and for postgraduate education of medical officers with special emphasis on prevention. It was not until 16 years later (1909) that the first formal department of preventive medicine was established in any civilian medical school (Harvard) in this country.

Military Health In The Twentieth Century

Since 1900 there has been a progressive improvement in military health which has paralleled closely the advances in civilian medicine and public health. During World War I both the Army and Navy had well organized programs of preventive medicine and their health records were much better than in previous wars. Typhoid, which had been a serious threat even as late as the Spanish-American War, was well controlled. The most important causes of sickness and death were pandemic influenza and other respiratory diseases. There was little exposure to tropical diseases.

In the 20 postwar years of peace, public health in this country made still further advances. Just before World War II the crude death rates for the United States had decreased from 17 per thousand in 1900 to about 10 per thousand in 1940. The expected life span at birth for an American citizen had increased from about 46 years to about 65 years. As usual, the peacetime

health of our troops stationed in permanent posts in the United States was better than that of the average non-military citizen. This is generally true because (1) the military forces are made up largely of vigorous young adults who have been carefully selected; (2) the American military man's way of living, including his personal hygiene, diet, housing, and physical training is regulated; (3) he is immunized against smallpox, typhoid, and other infectious diseases to which he may be exposed; and (4) he lives in a carefully sanitized environment which is rigidly controlled by a well-organized Medical Service.

Preventive Medicine Program In World War II

The hardships imposed by field service and combat make it difficult to maintain this type of peacetime health protection under the conditions of war. Therefore when it appeared that the United States would be drawn into World War II, the Surgeon General of the Army began to plan the expansion of the Medical Service to meet the increased responsibility of mobilization and war. The situation was somewhat like that faced today, but in 1940 we were not so well prepared for war as we are now. Although at that time the total Medical Service of the Regular Army consisted of only a few thousand officers, by the end of the war it had expanded to more than 100,000 officers and several hundred thousand enlisted men—a medical force which was larger than the entire Regular Army prior to the war.

Convinced of the importance of disease prevention, to the accomplishment of his mission the Surgeon General placed primary emphasis on the development of a strong aggressive wartime program of military preventive medicine. This program was planned by the preventive medicine service in his office in Washington and the directors of preventive medicine in the major theater headquarters. It was put into action by Medical Service personnel in all the far-flung places where our troops served. Its effectiveness can be attri-

buted to the cooperative action of the 10 million military persons who carried it out.

The Preventive Medicine Service.—In 1940 the Surgeon General started in his office a formal organization which eventually became the preventive medicine service. It began with one officer and expanded rapidly until it became a major unit of his staff. By 1944 this service consisted of the following divisions: (1) medical intelligence, (2) epidemiology, (3) venereal disease control, (4) tropical disease control, (5) laboratories, (6) sanitation and hygiene, (7) sanitary engineering, (8) nutrition, (9) occupational health, and (10) civil public health. The chief of the service also organized the Board for the Control of Influenza and Other Epidemic Diseases in the United States Army and the United States Army Typhus Commission. This Board, composed of more than 100 civilian consultants to the Surgeon General, was divided into 10 special commissions, each of which was concerned with a specific problem of disease control. It was later called the Army Epidemiological Board and has now become the Armed Forces Epidemiological Board. The U. S. A. Typhus Commission, which was a joint Army, Navy, and Public Health Service organization, was administered through the Secretary of War.

The broad objective which guided this service in all its planning was to use every possible facility in the nation—military and civilian—to keep the soldier well. To attain this objective it was necessary to apply all of the scientific information available to the prevention of disease and the conservation of military health and to promote research to discover and develop more effective control methods. In accomplishing this, the preventive medicine service enlisted the help of many highly qualified experts—at home and abroad—and it arranged for the assistance of numerous governmental and civilian agencies.

The Army's preventive medicine program included (1) general measures used to safeguard the soldier's health,

(2) measures employed to protect him against specific diseases, and (3) the extensive research activities carried on in looking for better methods to control the diseases that might attack him. Although some of these activities were planned and supervised by divisions of the Surgeon General's office not formally included in the preventive medicine service, they were a part of the total program.

General health measures included the physical selection of healthy recruits; the provision of healthful clothing, housing, nutrition, and physical training; intensive training in hygiene; and sanitary control of the soldier's environment. The latter was handled cooperatively by the division of sanitation and hygiene and the division of sanitary engineering. It included providing for safe food and water supplies, for the sanitary disposal of wastes, and the control of many insect vectors and rodent reservoirs of disease. The importance of sanitation was emphasized in the training courses of all military personnel and special intensive training in the subject was provided for the Medical Service in the Medical Field Service School at Carlisle Barracks. The sanitary program was operated efficiently, especially in fixed installations, but it was difficult to maintain adequate sanitation under combat conditions and the filth-borne diarrheas and dysenteries and certain insect-borne diseases, especially malaria, caused much sickness in certain overseas locations. In the continental United States this program was relatively successful. The extensive work done by the Army in its camps and posts was supplemented in the surrounding civilian areas by sanitary programs operated through the U. S. Public Health Service by State health departments. This cooperative arrangement, which was initiated by the preventive medicine service in 1940, was of great importance. It produced results which have had a profound influence on the present status of civilian and military health in the United States.

The Conquest of Malaria in the United States.—A spectacular example is af-

forded by the present status of malaria. In 1940 the Army started an intensive program for the elimination of mosquitoes in all military installations in this country. At our request, the U. S. Public Health Service supplemented this program with an extra-military mosquito control campaign. The Army program cost about 17 million and that of the U. S. Public Health Service about 19 million dollars. Considered as a whole, this was the most extensive mosquito-control program ever operated in any country in the history of the world. It was highly effective and although millions of men were trained in camps located in the Deep South, relatively few soldiers contracted malaria in this country. An important postwar outgrowth of this joint program was the establishment of the Communicable Disease Center with headquarters in Atlanta, Georgia, which is continuing the fight against malaria and other diseases and is now helping to mobilize our extra-military defenses for the present emergency. It is reassuring to know that malaria, which once was a major affliction in the South, is now disappearing. Last year the State of Mississippi offered a bonus of \$10.00 to any doctor who could find a new case of malaria, and not one case was reported. This story of the conquest of malaria in the United States is only one example of how the preventive medicine program of World War II exerted a powerful effect on the postwar health of the nation.

New Insecticides.—Another outstanding contribution made by our department of sanitation and hygiene was the initiation and coordination of an extensive research program aimed at the development of more effective agents and methods with which to improve military hygiene and sanitation. One of the most helpful results of this work was the development of new wartime insect repellents and insecticides which have been used so successfully for the control of typhus, bubonic plague, dengue, malaria, and other important diseases. The story of the development of these new agents is a romantic tale of

military achievement. Thousands of studies were made in many laboratories scattered all over the country, but the initiation, coordination and general guidance of the entire program of research and development was carried on in the division of sanitation of the Army preventive medicine service in Washington. The wartime development of DDT alone has been worth more than the total cost of the Army's entire research program during the war. DDT was the greatest contribution of the war, not only to military but to civilian health. It has freed us from the fear of typhus and it is now being used to conquer malaria, even in the tropics.

Prevention of Specific Diseases.—In addition to these general health measures, the Army's preventive medicine program included other activities designed to protect the soldier against specific diseases. The following divisions of the preventive medicine service were concerned with this phase of the problem; medical intelligence, epidemiology, laboratories, venereal disease control, and tropical disease control. They were assisted by the Army Epidemiological Board and by the Typhus Commission. The coordinated work of the members of these five divisions, the Board and the Commissions, was concerned with (1) the collection of exact information about the diseases that might attack American troops in any part of the world, (2) the analysis of current disease statistics, (3) the maintenance of adequate diagnostic and health laboratories for the identification of disease-producing organisms, (4) the development of policies, (5) recommendations for quick action to control threatened outbreaks of disease, and (6) the initiation of medical research in the laboratories and in the field to develop more effective control methods. Through these activities, the Surgeon General was kept informed at all times of the incidence of disease in our troops and in civil populations throughout most of the world. This enabled him to make intelligent plans for the protection of the troops.

Immunization.—Theoretically, the

ideal method for the specific control of infectious diseases would be through immunization. Although only a limited number of effective immunizing agents have been discovered, those that are available have contributed much to the maintenance of America's fighting manpower. A conference of representatives of the Army, Navy, and U. S. Public Health Service held early in 1940 in Washington recommended active immunization against smallpox, typhoid, the paratyphoid fevers, and tetanus. It also recommended that immunization against certain diseases, including diphtheria, Rocky Mountain spotted fever, plague, and cholera, be used only when needed to meet local conditions. Later, other immunizing procedures were adopted for use under special conditions as, for example, the vaccines against epidemic typhus and yellow fever, both of which are considered effective. Experimental work also was done to develop vaccines against the dysenteries, the various types of encephalitis, influenza, et cetera. We still do not have a useful vaccine against the dysenteries; the vaccines against encephalitis and influenza still require improvement to meet the needs of the Army.

Occupational Hazards and Health.—

The division of occupational health included branches dealing with (1) the health of workers in Army-owned industrial plants, (2) industrial hazards and accidents, (3) toxicology and, (4) the hazards of operating tanks and other mechanized Army transportation. This division initiated and supervised the activities of the Army Industrial Research Laboratory at Johns Hopkins University and the Armored Forces Research Laboratory at Fort Knox.

Civilian Health In Occupied Countries.

—The civil public health division was concerned with plans to protect the health of the civil population of conquered or liberated countries insofar as this influenced military activities. Throughout World War II this division worked closely with the medical intelligence division and with the War De-

partment. It planned for the development of strong postwar civil health programs in Germany and Japan and it assisted in selecting much of the key personnel to work in these areas.

The Control Of Disease In World War II

The filth-borne gastrointestinal diseases, which include the typhoid fevers, the dysenteries and diarrheas, and cholera, have long been the scourge of armies operating in the field. During World War II, however, none of these diseases were important except the diarrheas and dysenteries which did cause much temporary illness in certain locations overseas.

The wartime prevalence of the acute respiratory diseases, including influenza and pneumonia, was higher than during the peacetime years from 1930 to 1940, but lower than the rates for World War I. The mortality from these diseases was greatly reduced, undoubtedly because of the widespread use of the sulfonamides and, later, penicillin.

All our previous wars have been accompanied by a great increase in venereal disease among troops and in the civil population. Venereal diseases have plagued armies since the beginning of time and have disabled American troops since the battle of Bunker Hill. The wartime program for the control of venereal diseases was comparatively effective in this country and in certain locations abroad. Compared with previous wars, there was a definite reduction in these diseases, but they are by no means under adequate control and they will constitute an important, unsolved problem for the future.

The tropical diseases were another important hazard because so much of the fighting was done in the Tropics. This had been anticipated by the Surgeon General, and for years military medical officers had been urging that more studies be made to discover better agents with which to protect troops in the field against tropical diseases. In addition to the insecticides previously mentioned, researches were directed at the discovery of an effective prophylactic

drug for field use against malaria. Millions of dollars were spent in the search for new compounds which could be given to the soldier in the field to kill malarial sporozoites at the time of their injection by the bite of the mosquito. Although the ideal prophylactic has not yet been found, this research program proved to us that quinacrine, when properly used, will prevent falciparum but will only suppress vivax malaria. More important, it led to the discovery of a number of new antimalarial drugs. Some of these are highly effective for treatment in the clinical case and others, for example chloroquine, are more useful than quinacrine for suppression.

Although malaria was well controlled in this country, it was an important cause of illness in certain overseas locations, especially in the early part of the war. There were almost 500,000 admissions to hospitals during the war, and the rate was 18.9 per thousand per annum. These figures included many admissions for relapses. They do not give a true picture of the number of men infected as many cases were suppressed or cured by the routine use of quinacrine. Over 80 per cent of these patients with clinical malaria were admitted to hospitals overseas. Those treated in this country were largely relapses from infections contracted abroad. In general, the treatment was excellent and the death rate was not significant.

There were many other important tropical disease, including dengue, filariasis and schistosomiasis, but none of these was important as malaria. The tropical skin diseases were a serious problem in many places; this problem is still unsolved. There were various other disease problems, some of which still need attention, such as infectious hepatitis, the neurotropic virus infections, and trench foot. Considered as a whole, however, the health of the Army in World War II was much better than during any previous war. There were no great epidemics and many of the former plagues of war were completely controlled. In brief, the results show that within half a century military preventive medicine had advanced to the point

where it paid rich dividends in the conservation of America's fighting manpower.

In the Spanish-American War the rate for deaths from disease among our troops was about 25 per thousand annum; 13 American soldiers died of disease to every 1 killed in battle. In World War I the rate was reduced to about 16; the ratio of disease to battle deaths was 1.1. In World War II the disease death rate for our total Army of about 10 million men was only 0.6 per thousand per annum; in the European Theater only one soldier died of disease for every 85 killed in battle. This experience of the recent past shows that the field of preventive medicine and public health now has at hand methods which can be used to conserve both civilian and military manpower.

Unsolved Peacetime Health Problems

As we face the present national emergency, it is important to realize that in spite of the progress already made, many health problems must be solved if we are to conserve the nation's manpower in preparation for the threat of a long war. Even under the peacetime conditions of the last few years, too many civilians have been incapacitated or killed by preventable disease and accidents. The death rate for infectious diseases has been reduced, but they are not yet under control. The mental and degenerative diseases cause an enormous national loss in money and manpower. Other unsolved problems include occupational and industrial hazards and diseases, nutritional deficiencies, poor housing, atmospheric contamination, pollution of our streams with sewage and industrial wastes, and the need to conserve and protect the national water supply. There is much room for improvement in the field of maternal and child health; this was shown by the large number of physical and mental defects found in young men examined by the draft boards during the last war. Of those examined since June 1950, to bring the Armed Forces up to three and one-half million, one million have

been rejected as physically, mentally, or morally unfit.

New Defense Health Problems

In addition to these unsolved peacetime civilian problems, we must also consider the new disease hazards of a modern war which might easily begin with an atomic attack on the United States and require the use of American troops both in this country and abroad. This means that both the civil and the military population must be prepared for the occurrence of unusual disease which might accompany sabotage and bombing, and the disasters produced by atomic, biologic, or psychologic warfare. It also means that the civil health agencies must be prepared to combat a variety of diseases, many of which are now considered under control. In addition, the Armed Forces must be prepared to meet the wartime diseases which undoubtedly will be encountered in military operations. The existence of so many unsolved health problems at this late date in our national development is disappointing. It shows that although we Americans boast about health, we still do not have adequate health protection and that we still are not using our total resources for the prevention of disease. Therefore, if we as a nation are to provide and maintain the healthy manpower required in the present emergency and for the infinitely greater demands over an indefinitely long time in the future, we must organize a stronger defense health program.

Importance Of Preventive Medicine In The Defense Program

Our defense program must provide for both curative and preventive medicine. It is logical, however, even in peacetime to place the greater emphasis on preventive medicine in order to decrease expensive hospitalization and medical care. In time of war there is an added need to keep well people well because the entire population is needed for active duty either on the home front or in the fighting line. This means the new program must be aimed primarily at prevention. If our country is to make

the most of its latent preventive facilities, the importance of preventive medicine must be re-emphasized. Every one in the field of medicine and public health should make it his business to know what needs to be done to prevent disease in this country and, regardless of his primary specialty, he should work unselfishly for the accomplishment of this objective. If all our 200,000 American physicians will apply the principles of preventive medicine to the families of their patients and give enthusiastic support to their community health programs; if all of the country's hospitals will accept the added responsibility of serving as real health centers for their communities with a view to keeping the people well; and if sufficient health agencies manned by adequate numbers of competent specialists are provided for the entire country, the physical, mental and moral fiber of the nation can be enormously strengthened.

This is not a utopian dream, but to accomplish it quickly is a task which will require many revolutionary changes. One basic need is for a thorough re-vamping of the curriculums of the 79 medical schools in order to give the medical graduate a better concept of the practical importance of preventive medicine and public health. He should be indoctrinated with the preventive attitude. This will help to prepare him for his wartime responsibilities either in civil defense or in the Armed Forces. It should also assist in recruiting the health specialists now urgently needed to man our official and nonofficial civilian health agencies and for the preventive medicine organizations of the Army, Navy, and Air Force. By the same token, the military physician and surgeon should recognize his responsibility for preventive medicine in the Armed Forces. The strengthening of the civilian health program for the emergency will require the provision of additional local health units to cover the entire country and the taking of action to correct the present shortage in health specialists needed in the total civilian health program.

More Health Specialists Required for

the Defense Program.—The development of the emergency health program for the Armed Forces will require careful planning geared to meet the peculiar circumstances of the present threat against us. The Army, Navy, and Air Force must develop and implement sound mobilization plans for the rapid expansion of their programs of preventive medicine along lines which will enable them to carry forward all the advances now at our disposal. Each of the Armed Forces Medical Services now has a good peacetime division of preventive medicine; therefore, they are in a strategic position to prepare for war, but to expand the present programs sufficiently to meet the additional requirements (1) of our forces now fighting in Korea, (2) for the national mobilization and training activities now under way, and (3) for the still greater needs of another possible global war will call for large numbers of experts trained in every aspect of public health. Certain parts of this training can be provided within the respective services; but large numbers of the officers needed for key positions will require postgraduate training of the type now available only in the country's 10 accredited postgraduate schools of public health. It requires time to carry out such training, and therefore each of the services should rapidly develop adequate pools of specialists to meet their entire needs.

During the last war both military and civil health were handicapped because it was necessary for the Armed Forces to draw such personnel largely from the inadequate group of trained specialists required by the civil population. This weakened to a dangerous degree the staffs of civilian health agencies and the faculties of schools of medicine, dentistry, and public health. In the present emergency, this mistake must not be repeated, for to do so would be like destroying the goose that laid the golden egg. Large numbers of health specialists must therefore be recruited and mobilized; and this supply must be maintained in order to operate the nation's wartime military and civilian health programs. These specialists will

include health administrators, epidemiologists, public health laboratory experts, public health nurses, health educators, biostatisticians, nutritionists, and industrial and sanitary engineers. For the key administrative and professional positions, there is urgent need for physicians who have the additional postgraduate training and experience required by the recently established American Board of Preventive Medicine and Public Health. The training required is now available only in the 10 accredited schools of public health.

At present these schools are graduating only about one-fifth of the specialists needed to fill key positions in the peacetime civilian health program of the country. This makes it clear that the national emergency will call for the recruitment of many additional health specialists and for expansion of the fac-

ilities for their postgraduate training. Although my subject has been military preventive medicine, I have dealt at some length with civilian public health because experience in both fields has taught me that the two are fundamentally similar and interrelated. They differ only in certain details of administration and application. The expert in military preventive medicine and the civilian public health specialist both operate by applying fundamental knowledge for the prevention of disease in their respective populations. They both need research aimed at the solution of unsolved problems. Civilian health has always influenced military health, and the reverse is also true. Today's emergency, which demands the mobilization of the entire nation, brings the military preventive medicine specialist and the civilian public health specialist more closely together than ever before.

POLIOMYELITIS

BY W. HOWARD WILSON, M.D.
Raleigh, N. C.

In spite of the fact that it cripples less than one-fiftieth as many people as rheumatic fever, and in spite of the fact that only one child in a million contracts it, poliomyelitis, or infantile paralysis, is one of the most feared of all diseases. While the medical profession has much knowledge of the way in which it is spread, there is still much more to be learned. There is no cure in the strict sense of the word, but there is much that can be done by proper treatment.

Our first line of defense against an invasion of infantile paralysis is knowledge, from an immediate and practical point of view, of what can be done to anticipate and prepare for an epidemic and of the precautions that should be taken at such a time. We also need further knowledge of the cause of infantile paralysis, its means of spread, and improved methods of treatment. New facts have been learned and new methods have been developed, but much still

remains to be done before infantile paralysis can be removed finally and completely from the list of great crippling diseases.

The hot summer months are generally regarded as the polio season, because the disease usually picks up momentum during that season. Scientists cannot explain why, but there are theories that the virus which causes polio spreads more rapidly when the weather is hot. So far there have been very few cases of poliomyelitis in Raleigh and Wake County this year.

The modern term used by physicians and other professional people is poliomyelitis, and this is often called polio for the sake of brevity. Poliomyelitis is aptly named, for polio means gray, myelos means spinal cord or marrow, and itis means inflammation. Inflammation of the gray matter of the central nervous system is the characteristic nervous system abnormality of this disease. Infantile paralysis is the term

most frequently used, which in one way is unfortunate, as some people jump to the conclusion that only very young children are attacked. This is not so, for individuals of thirty, forty, or older may have the disease, although it is true that the majority of patients are children.

When polio is prevalent, one should keep away from crowds and places of public attendance, pay strict attention to personal hygiene, avoid swimming in waters that might be polluted, keep flies away from food, avoid sudden chilling from plunging into very cold water on an excessively hot day, and avoid overtiring and extreme fatigue.

If symptoms of headache, fever, or gastrointestinal disturbances should occur, then a physician should be notified.

If possible, one should avoid tonsil and adenoid operations during epidemics.

Perfect health is not proof of protection against infantile paralysis, but a rested body is good insurance.

One should remember that the chance of contacting the disease in relation to the total population is small, so people should not become fearful and spread panic.

Most cases of poliomyelitis are non-paralyzing.

There is no specific means of warding off poliomyelitis. During an epidemic many carriers and persons with mild, undiagnosable forms of poliomyelitis infection unintentionally and unknowingly spread the virus. There is no practical way to detect these carriers. All that can be done is to prevent unnecessary contact with others. It must be remembered that even rigid confinement of a child to his home, however, will not always prevent the disease from being carried to him.

There is no known drug that will actually cure infantile paralysis. The use of serums is apparently of no value. There is no magical or secret method of treatment that has any merit. Every bit of information gained by every reputable physician is immediately made generally available. Such knowledge is published not only in scientific articles, but

even in newspapers and popular magazines, and is broadcast to the people themselves for their use.

On the appearance of the very first suspicious symptoms of the disease, such as fever, headache, stiff neck or leg pains, a physician should be called, because he might be able to help prevent serious complications of poliomyelitis and reduce the crippling that is a common result.

Treatment should be started at once, preferably in the isolation department of the hospital, where the necessary equipment and the specially trained nurses are available.

As soon as the muscle soreness and spasm have been relieved, the affected muscles must be re-educated. In the hands of the skilled physician and physiotherapist much can be done to return patients to full use of all their muscles, so that there will be a minimum of permanent injury.

The ultimate success of treatment of paralysis depends not alone on the physician, nurse, physical therapist and hospital staff, but also on the patient and the patient's family. Infantile paralysis, even though it may impair the muscles, does not affect the intelligence. The physician and the patient have the task of improving the physical state and readjusting the mental state. Weakened muscles in an arm or leg need not mean defeat. They need not even offer a serious handicap. Success and a happy and useful life are just as possible for the infantile paralysis victim as for anyone else. Improper attitudes on the part of the patient or the patient's too solicitous family may lead to maladjustments of personality than can be even greater handicaps than physical crippling.

Cases of headache, fever, arm or leg pain, or stiff neck should be seen by a physician who will decide whether or not to send the patient to the hospital where isolation can be adequate, where a spinal puncture can be done if necessary, and where respirators are available when needed, and where cooperation between physicians, orthopaedists, physiotherapists, and nurses can best be

utilized for the welfare of the patient with poliomyelitis.

We look forward to more definite progress in the control of this disease at its source so that attacks may be prevented. Much work has been done toward developing a preventive vaccine against poliomyelitis, but this has not become practical for use in human beings.

The National Foundation for Infantile Paralysis which sponsors the "March of Dimes" campaign, stands ready to give generous aid and financial assistance to needy cases.

POLIO POINTERS FOR 1951

If Polio Comes

DO allow children to play with friends they have been with right along. Keep them away from new people, especially in the close daily living of a home.

DO wash hands carefully before eating and always after using the toilet—especially important when polio is around.

Also keep food clean and covered.

DO watch for signs of sickness, such as headache, fever, sore throat, upset stomach, sore muscles, stiff neck or back, extreme tiredness or nervousness, trouble in breathing or swallowing.

DO put a sick person to bed at once, away from others, and call the doctor.

Quick action may lessen crippling.

DO telephone your local chapter of the National Foundation for Infantile Paralysis, if you need help. Locate through telephone book or health department. No patient need go without care for lack of money. Your chapter will pay what you cannot afford.

DO remember—at least half of all polio patients get well without any crippling.

DON'T get over-tired by hard play, exercise, work or travel. This means men, women or children.

DON'T get chilled. Don't bathe or swim long in cold water, or sit around in wet clothes.

DON'T have mouth or throat operations during a polio outbreak.

DON'T use another person's towels, dishes, tableware or the like.

DON'T take children to places where there is polio. Ask your health department.

DON'T take your child out of camp or playground, where there is good health supervision.

For more information about Polio write

The NATIONAL FOUNDATION
for INFANTILE PARALYSIS

120 Broadway, New York 5, N. Y.

Franklin D. Roosevelt, Founder

This publication made possible by the March of Dimes. — Publication No. 31 March, 1951

AMERICAN HOSPITAL SERVICE IN 1950 SETS ALL-TIME HIGH

American hospital service in 1950 reached an all-time high mark, according to the 30th annual report of hospital data made public by the Council on Medical Education and Hospitals of the American Medical Association.

The number of patients admitted last year totaled 17,023,513, representing one new patient every 1.8 seconds. In 1949, the total was 16,659,973, or one every 1.9 seconds. Nongovernmental hospitals accounted for 304,955 of the increase and federal, state, county and city institutions for 58,585.

Hospital births showed a slight drop. 2,815,806 in 1950 as against 2,820,791 in 1949. Both figures represented one live baby every 11.2 seconds.

The report, prepared by Dr. F. H. Arestad, Chicago, associate secretary of the council, and Miss Mary A. McGovern, was published in the current (May 12) Journal of the A.M.A. It covered 6,430 registered hospitals in the United States. Excluded were 299 hospitals which failed to supply data. These in 1949 had accounted for about 260,000 admissions and 1.5 per cent of the services rendered.

The 1,456,912 bed capacity of all registered hospitals (1,439,030 in 1949) was divided as follows: Federal, 186,793; state, 665,019; city and county, 185,229; nonprofit church-related, 150,078; nonprofit associations, 218,788; proprietary,

51,005; total governmental, 1,037,041; total nongovernmental, 419,871.

Although the nongovernmental hospitals had only 29 per cent of the bed capacity, they accounted for 12,706,143 admissions, or nearly 75 per cent of the total. The admissions by groups were as follows: Federal, 1,127,937; state, 791,863; city and county, 2,397,570; nonprofit church-related 4,944,745; nonprofit associations, 6,309,157; proprietary, 1,452,241; total governmental 4,317,370; total nongovernmental 12,706,143.

The general hospitals with a bed capacity of 587,917, or 40 per cent of the total, provided service for the most people—15,830,170, or 93 per cent of all patients admitted. In addition, they accounted for 2,739,212 births, or 97 per cent of the total. The average daily census of these hospitals was 433,364, or nearly 35 per cent of the patient load in all hospitals.

In the psychiatric division, the bed capacity was 711,921, or 49 per cent of the total. Nervous and mental institutions admitted 307,165 patients (308,055 in 1949, the record) and had an average daily census of 687,567, a new high (675,096 in 1949).

The 1.8 per cent of the total admissions accounted for by mental hospitals does not give a full indication of the extensive service carried out in this field, the Journal pointed out.

"It is necessary to take into consideration that the psychiatric hospitals maintain an average daily census of 687,567, which is greater than the patient load in all other hospitals combined," it explained. "For the most part the hospitalization of psychiatric patients is a public responsibility, as evidenced by the daily census report of 670,578 in the governmental hospitals compared with 16, 989 in the nongovernmental group."

Tuberculosis hospitals had a bed capacity of 85,746, or 5.8 per cent of the total. They admitted 113,275 patients and had an average daily census of 72,370, both new high marks.

The remaining beds were in maternity, industrial, children's and other types of hospitals, accounting for 5.2 per cent of the total.

The council's report also disclosed that 7,118,305 patients, or 43.5 per cent of admissions, received operative treatment in 1950. A previous report with such information, covering 1942, showed that 44.7 per cent had received operative treatment in that year.

In bed occupancy, the average of all hospitals last year was 85.3 per cent, as against 85.1 per cent in 1949. Governmental institutions as a whole showed a rise to 89.8 per cent from 89.3. The highest rate, 95.1 per cent (94.2 in 1949), was in state hospitals, which give their major service to psychiatric care. The nongovernmental group reported a decline to an average of 74.1 per cent in 1950 as compared with 74.7 per cent in 1949.

The average length of stay in federal hospitals last year was 26.5 days, as against 25.8 days the year before. The stay in the government hospitals ranged from averages of 11.3 to 15 days (11.8 to 15.4 in 1949). In nongovernmental general hospitals, the average was 7.9 days, as against 8 days in 1949.

"In all activities associated with hospital and educational services, the individual hospitals are constantly striving to improve the standards and quality of patient care," the Journal pointed out editorially.

"The hospital field has been generous in its support of educational activities, and many institutions are participating in the training of medical students, interns, resident physicians, student nurses, technicians and other hospital personnel. At present 824 hospitals are approved for internships and 1,102 for residency training.

"Accredited professional schools of nursing, now conducted in 1,106 hospitals, have a student enrolment of 102,611. In addition, there are 318 hospital schools of practical nursing in which 5,971 students are now in training. The technical fields are represented by 467 approved schools of medical technology, 30 schools of physical therapy, 24 schools of occupational therapy, 18 schools for medical record librarians and 283 schools for x-ray technicians."

YOU CAN LIVE WITH YOUR ULCER, BUT IT'S UP TO YOU

You can live with your ulcer if you can learn to relax and enjoy life. This may involve some changes in diet and the elimination of such things as smoking, liquor and hot dogs, but these sacrifices will be worth while."

So said Dr. Paul Wermer of Chicago in an article in Today's Health, published by the American Medical Association. Dr. Wermer is secretary of the Committee on Research of the A.M.A.'s Council on Pharmacy and Chemistry.

About 5 per cent of the population eventually will become victims of peptic ulcer, he said. But, for the most part, these sufferers can take a pat on the back, for the disease occurs usually in hard-driving, intelligent and conscientious persons when under undue stress.

Peptic ulcers are open sores in two organs, the stomach and the duodenum, the first part of the intestine. Those of the stomach are called gastric ulcers; those of the duodenum, duodenal ulcers. These areas are bathed in the stomach juices, which contain pepsin. Pepsin is president in both types and for that reason they are called peptic.

Their cause never has been determined definitely. One theory is that severe emotional and nervous strain causes a disturbance of the nerve supplying the stomach. This nerve, known as the vagus, influences the blood supply of the stomach lining.

"In some manner, the blood supply to a small area of the stomach is sharply diminished, causing damage," Dr. Wermer pointed out. "The stomach juices and ferments do the rest.

"All authorities agree that two conditions must exist for a peptic ulcer to develop. First, there must be an injury or damage to the mucous membrane, or lining of the stomach. Second, there must be ample stomach juices containing acid and a digestive ferment, pepsin.

"In the presence of these conditions, the stomach juices treat the damaged area almost as if it were food. They try to digest it. Furthermore, the action of the acid juices on the ulcer stimulates

the stomach to manufacture more digestive juice. If nothing is done, the ulcer can actually be digested through the stomach wall and cause a perforation. This occurs more rarely with duodenal ulcer. Only emergency measures will do in such a case.

"But, perforation can occur only if the patient neglects the rules of medication and diet that the physician has prescribed."

By modern-day methods, most ulcers can be controlled adequately through medication and without resort to surgery, provided the patient is cooperative. Dr. Wermer said. The doctor will prescribe something to counteract the acidity of the stomach juices and suggest a diet which will not upset the delicate chemical balance of the body. He also will advise what must be done to relieve nervous tension.

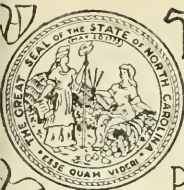
How soon relief of the ulcer pain may be expected depends upon the patient's willingness to obey orders. It may be a week or 10 days, even earlier in some cases. But, Dr. Wermer stressed, relief does not mean cure. The doctor will have to watch the ulcer crater with repeated fluoroscopic and x-ray examinations. As conditions improve, diet and other restrictions will be liberalized.

"When you think it over, having an ulcer is not too bad," he concluded. "You just have to adopt a changed outlook. Don't let things get you riled. Relax and enjoy life."

Summer means that children are spending more time out-of-doors, and the chances of traffic tragedy in the streets are increased, the National Safety Council warns. Motorists should remember that more than three-fourths of all child traffic deaths result from the children crossing between intersections, coming from behind parked cars or playing in the roadway.

To keep your vacation free of tragedy, the National Safety Council advises you to limit the distance you drive each day. Trying to cover too many miles leads to speeding, fatigue and mechanical failure. And it's no fun anyway!

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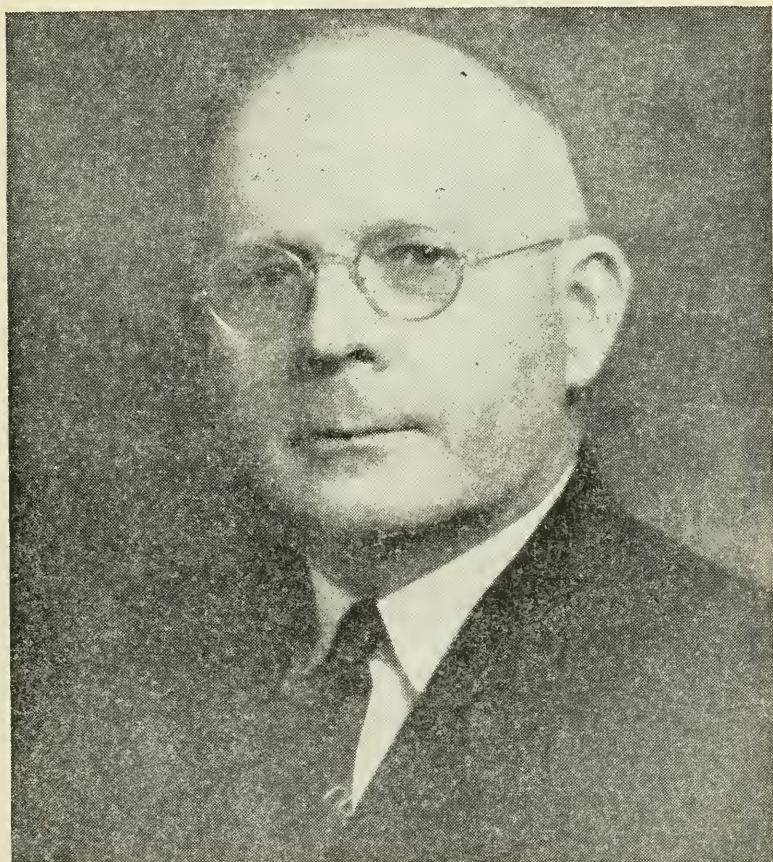
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FLOYD JOHNSON, M.D., Columbus County Health Officer for thirty years—Has examined thousands of school children.

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The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

Adenoids and Tonsils	Hookworm Disease	Typhoid Fever
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SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, N. C.

Prenatal Care	First Four Months
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Infant Care	Nine Months to One Year
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Diarrhea	Two to Six Years
Breast Feeding	Instructions for North Carolina Midwives
Table of Heights and Weights	Your Child From One to Six
Baby's Daily Schedule	Your Child From Six to Twelve
	Guiding the Adolescent

CONTENTS

	Page
The School And Pre-School Health Program.....	3
The Development Of The North Carolina Cooperative School Health Program	5
Mental Hygiene In The Schools.....	7
The New Physical Education Bulletin For The North Carolina Schools.....	9
Health Education Workshop	10
Report of Medical And Dental Examinations In Beaufort, Iredell And Swain Counties.....	11
Teacher Screening And Observation Of School Children.....	13
Health Aspects Of Athletics	14

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THE SCHOOL AND PRE-SCHOOL HEALTH PROGRAM

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The school health program in North Carolina reached another milestone in 1951 when the school year of the Joint School Health Program was completed with marked accomplishment. The co-operative plan designed and agreed upon by the State Department of Public Instruction and the State Board of Health in 1949 has been assured financial support for the next two years by the State Legislature.

It was possible to intensify this program during the past two years because the Legislature of 1949 made funds available for the expansion of the program and for the correction of defects discovered in the under-privileged class. The success of the program during the past two years has been due to the excellent teamwork of all agencies interested in the health and welfare of the school child, including civic clubs, welfare workers, Parent-Teachers Associations, medical and dental professions, and the school and public health department personnel. The cooperative spirit of all these agencies is a source of deep satisfaction to those responsible for administering this program and is considered an excellent omen of greater success in the program of the future.

In reviewing the growth of the school health program, the administrators can

point with pride to the accomplishments in the screening program carried on by the teachers and the nurses, the number of physical examinations performed by physicians and dentists, the referrals to private physicians, and the number of defects corrected. It is a source of deep satisfaction to observe the progress of a child following the correction of a defect that may have been responsible for his repeating a grade in school. Example after example of worth-while tangible results can be written in the annals of every county in the state.

As usual, when one milestone is reached, it is necessary to raise the sights towards the accomplishment of new goals. In reviewing the programs of local health departments, it is noted that considerable emphasis for a long period has been placed on prenatal, postnatal and infant welfare programs. The success of these programs has been largely due to the cooperation maintained between the medical profession and local health personnel. These programs have been designed to protect the mother and child during the prenatal, postnatal and during the first year of the child's life. The success of this program is strikingly revealed by the marked reduction in the maternal

and infant death rates of today as compared with those of twenty-five years ago.

Everyone interested in the welfare of the growing child appreciates the value and importance of a constructive school health program. Such a program should be continued and made more effective from year to year. However, at this time it is deemed of paramount importance to call attention to that trite but true statement that "as a twig is bent, so is the tree inclined." As previously stated, public health workers, parents and physicians have given close attention to babies during the first year of life; however, the so-called "toddler" group of children has apparently been overlooked. It is felt that special attention should be given to this group in the future. The school health load has been materially increased by failure to exercise closer supervision over the "one to six" age group. By the time a child reaches the age of six years, the physical and emotional pattern of that child has become fairly well established or "inclined." Every local health department should have as its main objective the execution of such a constructive pre-school health program that every pre-school child by the time school age is reached will be free of all correctable physical and emotional defects and will have been immunized against all diseases for which an immunizing agent is available. The achievement of such an objective will not be easy. It will require persistent and continuous teamwork on the part of parents, physicians, dentists, Parent-Teachers Associations, and the personnel of local health departments. However, such a program, if properly executed, can be expected to produce the following tangible results:

1. The provision for optimum physical and mental well-being for the child throughout the pre-school period as well as assuring the child every opportunity for sound physical and emotional growth.
2. A sizable reduction in the number of school children requiring attention for the correction of physical

difficulties or emotional health problems.

3. The establishment of a pattern for medical care that will encourage a child to seek regular medical attention from his private physician or dentist throughout his life.
4. The time and personnel now being used to secure the correction of defects in school children could well be utilized in extending other phases of the public health program.

The second statement, as given above, points to the fact that the school-age child with a physical defect may have had the misfortune of living with that defect several years before it is revealed in a school health examination. No one would consider waiting for children to get diphtheria before offering a program of immunization, nor should one wait until the child is six years of age before taking action on a remediable defect.

It is recognized that the school-age child is in a more or less controlled situation. The children are already assembled and accounted for when the health workers enter the school building to execute the school health program. It is essential that a sound health program for this age group be maintained. In contrast, the pre-school group is a scattered population. In order to develop a sound program with this group, it will be necessary to utilize greater resources and ingenuity.

The Parent-Teachers Association has given significant impetus to the school health program through the able sponsorship of pre-school clinics for children planning to enter school. This program has aided materially in the success of the school health program. This agency should be able to make an outstanding contribution to a more comprehensive pre-school program.

The expedient way to carry on a school health service program is to wait until the child enters school. The more profitable way for the child and community is to initiate and execute a sound health program for the age group of one to six.

It is sincerely hoped that the personnel of the local health department and members of the medical profession will continue to carry on the constructive maternal and child health programs which have already achieved startling results; that the local health departments, Parent-Teachers Associations, and parents will re-double their efforts to promote a sound program designed to induce a normal physical

and emotional development of the pre-school child; and that everyone interested in child welfare will continue to give enthusiastic support to a constructive school health program. In this way, it will be possible to achieve, for all practical purposes, the main objective of a joint school health program, namely, the development of a future citizenship which is physically, intellectually and emotionally mature.

THE DEVELOPMENT OF THE NORTH CAROLINA COOPERATIVE SCHOOL HEALTH PROGRAM

By CHARLES E. SPENCER, DIRECTOR
School Health Coordinating Service
Raleigh, North Carolina

The health of the school children of North Carolina is a concern of many agencies, organizations and individuals. Successful programs of school health are, to a great degree, dependent upon the extent to which those interested cooperate.

For thirty or more years the State Department of Public Instruction and the State Board of Health have worked together on school health programs in a limited and unofficial way.

The first big step in the development of a jointly sponsored program began with the establishment of the School Health Coordinating Service as a joint enterprise of the State Board of Health and the State Department of Public Instruction. The Rockefeller Foundation and the General Education Board, assisted financially in the project for a period of eight years.

From 1939 to 1947 the School Health Coordinating Service operated largely as a demonstration project in three to five selected counties each year.

During these years of demonstration work emphasis was placed on in-service education programs for local personnel in the areas of health instruction, teacher screening, healthful school living (environmental sanitation) and physical education.

During this period of time consultant

services to schools and health departments were offered by several divisions of the State Board of Health and the State Department of Public Instruction each one operating more or less independently of the other.

Another step was taken in 1947 to bring about a more cooperative school health program. On May 29, 1947, the State Health Officer, Dr. Carl V. Reynolds, and the State Superintendent, Dr. Clyde A. Erwin, upon recommendation of the then Co-Director, Dr. C. P. Stevick and Charles E. Spencer and with the advise of the Advisory School Health Committee changed the policies governing the work of the School Health Coordinating Service. Beginning September 1, 1947 this Division of the State Department of Public Instruction and the State Board of Health began to offer its services to the State as a whole in the promotion of:

1. Health and safety instruction in the public schools.
2. Better health facilities.
3. A more extended health service program.
4. Physical education in grades 1-12.

The 1949 General Assembly provided the "where-with-all" to make progress in a cooperative school health program on a state-wide basis on a scale not achieved in any other state in the Na-

tion. Upon request of the State Board of Education, supported by the State Board of Health, the 1949 General Assembly appropriated for school health \$550,000 for each year of the biennium to the State Board of Education to be used as grants in aid to city and county school administrative units.

The 1949 General Assembly also increased the appropriation to the State Board of Health and thus enabled this Department to earmark an amount equal to 40¢ per pupil to be allocated to local health departments.

These appropriations have made it possible for the State Department of Public Instruction and the State Board of Health, with the School Health Coordinating Service serving as the administrative unit for both agencies, to make still greater progress in developing what may truly be called a "Joint School Health Program" involving the active cooperation of many agencies, organizations, and individuals.

In order to develop a sound school health program utilizing all of the resources available the two state agencies agreed to require joint planning and budgeting on the part of school superintendents and health officers before approval of budgets. This has resulted not only in planning the expenditure of school health funds but has resulted in cooperation in the wise use of the time of health department personnel most of whom spend some time working in schools or with school personnel.

The extent to which the local superintendent and health officer have brought others in on the planning has varied considerably and the exact manner in which the several agencies and organizations helped in the planning and carrying out the school programs have also varied to meet the needs of the groups concerned.

Ten Regional School Health Conferences were held in September last year the chief purposes of which were:

1. To promote joint planning.
2. To interpret the school health programs to those invited to attend.
3. To stimulate more cooperation and team work by the various groups

concerned with school health.

These Regional Health Conferences were sponsored by the State Advisory School Health Committee composed of representatives of the several divisions of the State Board of Health and the State Department of Public Instruction having some part in the total health program and a representative of the medical and dental societies, the Welfare Department and the North Carolina Congress of Parents and Teachers. Incidentally, it should be pointed out that the organization of this committee was a forward step in developing better cooperation and understanding on the part of those working in State agencies and organizations.

No attempt will be made to report the discussions and all the conclusions reached at the above mentioned Regional School Health Conferences but a few conclusions pertinent to the subject of this article are:

1. That joint planning is conducive to better understanding.
2. That there is better cooperation on the part of those who help carry on the various phases of the school health program when they, in one way or another, participate in the planning.
3. That better programs can be achieved when there is real understanding and cooperation.

The progress made in the school health program during the past two years is in itself a demonstration of what can be achieved through cooperation. In some phases of the health program progress can be observed but cannot be stated in measurable terms. For example, improvement in the health instruction program cannot be measured over a short period of time in statistical terms.

However, in the matter of finding and correcting defects of children much can be noted. Reports sent in to the School Health Coordinating Service indicate that thousands of chronic remediable defects of children have been found and corrected. For children of parents unable to pay for such services school health funds have been used. Voluntary

agencies and other organizations have assisted in these programs. Moreover, the follow-up program by school and health department personnel have resulted in getting parents, who could pay, to seek and pay for medical services for their children.

The achievements in improving the health of school children in North Carolina during the past two years can be attributed to the cooperation of: school personnel including teachers, principals, supervisors, health educators, and superintendents; health department personnel including nurses, health educators, sanitarians and health officers; private physicians and dentists; welfare officers; volunteer agencies and other community organizations.

June 30, 1951 ended the second year

of operation of the "Joint School Health Program" made possible by the appropriation of the 1949 General Assembly. The 1951 General Assembly appropriated the same amount for school health as the 1949 General Assembly.

With two years of experience in planning the expenditure of school health funds and of cooperatively carrying out of those phases of the program not related to these funds as well as those related to it, the parents can rightfully expect a high level of health for their children in the future.

The unofficial figures showing the items of expenditure of State Board of Education school health funds for the period July 1, 1950 to June 30, 1951 is as follows:

Salaries:	Health Educators	\$ 30,632.97
	Nurses	88,043.12
	Physicians	5,973.25
	Audiometer Technicians and Dentists.....	9,274.12
Travel:	Health Educators	4,312.87
	Nurses	14,348.00
	Physicians	185.11
	Audiometer Technicians and Dentists.....	1,875.39
Clinic Fees for Medical Examinations.....		28,592.43
Correction of Defects.....		304,563.17
Supplies		22,201.43
Equipment		16,339.41
In-Service Training		2,316.00
		<hr/>
		\$528,657.27

MENTAL HYGIENE IN THE SCHOOLS

By R. M. FINK, PH.D.

Consultant in Mental Hygiene
North Carolina School Health Coordinating Service
Raleigh, North Carolina

Each year in North Carolina about 25,000 teachers influence the lives of about 900,000 children. If the future is like the past about 36,000 of these children will eventually enter a mental hospital, and about 81,000 more will have their lives seriously upset by personality disorders.

Four years ago the North Carolina School Health Coordinating Service initiated a small program aimed at the improvement of the mental health of school children, with the hope that this program would also contribute to the prevention of mental illness. The 25,000 teachers and school administrators of

the State were recognized as a force which, over a period of years, could exercise a strong influence for the mental health of the citizens of the State.

During these four years a variety of methods have been used to educate school people in the principles of mental hygiene as they may be applied in school administration and instruction. We have used films, lectures, discussions, case studies, socio-drama, publications, radio programs, personality tests, parent education and the like.

Teachers have studied individual children; they have examined their own mental health; administrators have worked with teachers to eliminate unnecessary anxieties aroused by school practices; some courses of study have been examined from the viewpoint of their influences on mental health; classes have been organized with the deliberate intent of aiding children to understand their emotions; instruction in sex education has been initiated by some school systems, etc.

In the school year 1950-51 thirty school administrative units received help from the Coordinating Service in planning and executing in-service education in mental hygiene for teachers. In seven units extensive programs were carried on during the major portion of the school year. Nine other units developed programs in which the actual meeting time amounted to four to eight hours. Thirty-six one day programs were held. In addition, one program was held for nurses from twelve counties.

During the summer months the Coordinating Service cooperated in the education of groups of teachers at the University of North Carolina, North Carolina College, Western Carolina Teachers College, and Catawba College.

During this same year every school supervisor in the State was supplied with a looseleaf handbook containing practical suggestions for working with teachers. This is a continuous service to supervisors. Two of the recent bulletins were "Mental Health and Fear of Authority" and "Adjustment to the First Year of School."

Approximately 5000 pamphlets dealing with emotional readiness for beginning school were supplied to school districts at cost for free distribution to parents. Two hundred schools purchased, at cost, a collection of pamphlets concerning mental health in the schools. Four hundred of these "kits" were used by schools in the previous two years.

During this year one major project was initiated in the primary grades of one county. This is a three year study with the purpose of trying to learn whether primary teachers can be taught understandings and practices which will increase the emotional stability of these children during the first three years of school.

The most important question that can be asked concerning this program is, "Does it work?" We do not know. We believe that it does, but the evidence is difficult to collect. Indeed, the results that we hope to see may not appear until these children are well into adulthood. Yet there are many indications that the program is worthwhile.

Each year there is an increasing demand for help by the schools of the State. For the past two years it has been impossible to meet many requests. School people think that the service is valuable. One supervisor, perhaps with excessive enthusiasm, remarked, "This is the most important in-service training program we have ever had."

Many teachers feel that they have personally benefitted from their study. For example, one stated, "I have always worried too much over little, unimportant things. As a result of the workshop, I think I understand why I let myself become like that, and I believe that I have become more cheerful and an easier person to work with. I teach with less tension, too."

Many teachers have given examples of pupils whom they think they have been able to help as a result of increased understandings of mental hygiene.

A girl who was the most unpopular in my room last year was voted the most popular this year as a result, I

feel sure, of the ideas I got from lectures and films.

There has been a freer teacher-pupil relationship in my room since I have realized the need for outlets for pent-up emotions—frank discussions, too.

We suggested to the parents that they have a garden, raise chickens and hogs and can fruit. By so doing the mother would be able to spend more time with the children and save more than she makes working for six or seven dollars a week.

As a result, I believe, of the things I learned and did Ronald is no longer as nervous as he used to be. He has almost stopped telling those highly exaggerated stories about his divorced father. His school work has improved, too.

During the past four years we have deliberately scattered our efforts into every aspect of school life which has

seemed of interest to teachers. To some extent this experimentation will be continued, but it seems wise now to concentrate our efforts in four areas:

1. Emotional adjustment during the primary grades with emphasis on the first grade.
2. Human Relations Classes for the early adolescent.
3. A study of the worries and fears of high school students with attention to the implications for high school teachers.
4. The mental health of the teacher and administrator.

It would be ridiculous to believe that the public schools can eliminate mental illness. It would be equally ridiculous to ignore the fact that 25,000 teachers with knowledge of the principles and practice of mental hygiene can make a major contribution to the mental health of North Carolina's children.

THE NEW PHYSICAL EDUCATION BULLETIN FOR THE NORTH CAROLINA SCHOOLS

By HELEN STUART

Advisor in Physical Education
School Health Coordinating Service
Raleigh, North Carolina

The State bulletin of **Physical and Health Education for Elementary and Secondary Schools** has served as an effective guide to teachers and supervisors in conducting health and physical education programs throughout the state of North Carolina.

This publication has been in continuous use since 1940, and it was thought advisable to select and compile material for a teacher's guide in line with the changed practices and policies in general education, particularly in the field of physical education.

The task of preparing a new bulletin was under the direction of Mr. Charles E. Spencer, Director of the School Health Coordinating Service and Mrs. Ruth Moore Davis,⁽¹⁾ State Adviser in

Physical Education. They were ably assisted by many professional leaders in the field. Work on the guide required endless planning and study by the groups in order that the new manual would include a curriculum that would meet the needs and interests of children in each school unit.

As a result of the valuable contribution made by these persons in the state all material for the new bulletin was completed and sent in early this year. This publication is now being printed and will be ready for distribution in January, 1952.

The revised guide contains the following areas of study:

The first area on the organization and administration of physical education is written to help teachers, supervisors, and administrators to plan and organize

¹Now employed by Charlotte City Schools

a good program for their own particular school or administrative unit. The basic philosophy of physical education is clearly stated through the discussion of the child, his needs, and his ways of acquiring motor skills. Schedules and procedures for setting up a program are outlined. Standards for facilities and equipment are suggested.

The game area describes suitable activities for physical education in grade 1-8. All analysis of skills developed through lead up games is given. This section also contains relays with the general teaching suggestions, rhythms, individual and dual sports, stunts and tumbling and many other activities that challenge the interests of our boys and

girls because they parallel with the normal growth and development of each.

Desirable types of physical activity on body mechanics, self testing activities, recreation, camping, intramurals, aquatics and special day programs are also presented because these activities have become an important phase of physical education programs.

The general purpose of this new course of study in physical education is to provide an abundance of practical materials that can be used by classroom teachers in rural and city schools so that their teaching will be more effective and it is a hope that each one will realize a feeling of satisfaction from the use of the new bulletin as a guide.

HEALTH EDUCATION WORKSHOP

CHAPEL HILL, N. C.—JUNE 11-JULY 19, 1951

By ANNIE RAY MOORE, HEALTH EDUCATOR

School Health Coordinating Service

Raleigh, North Carolina

Not all the way from Manteo to Murphy but from Hatteras to Rutherfordton came the 30 teachers, principals, and supervisors to attend the Health Education Workshop. These participants represented all grades from 1 through 12 and principals and supervisors too. They came from the following counties: Catawba, Chatham, Cumberland, Dare, Durham, Gaston, Forsyth, Harnett, Mecklenburg, Onslow, Randolph, Rowan, Rutherford and Wake.

Again this summer the workshop was jointly sponsored and carried on for six weeks by the University of North Carolina and the School Health Coordinating Service of the State Department of Public Instruction and the State Board of Health. Charles E. Spencer, Director of the School Health Coordinating Service, directed the workshop. The N. C. Division of the American Cancer Society and the North Carolina Tuberculosis Association provided financial assistance. Many participants received scholarships from their own county or city Tuberculosis Association, Cancer

Society, or School Health Fund.

These school people came to the workshop to get help in solving health problems and to improve their own school and community health programs.

The first several days were spent in getting acquainted with resources and in identifying and defining health problems.

Then by planning together the participants and staff were able to provide many experiences through which the participants were able to acquire scientific information and practical techniques for solving these problems.

Each participant had a variety of experiences. These activities included working in large and small groups, committee work, field trips, film showings, panel discussion, demonstrations, lecture-discussions, interviews, physical education and recreation.

Visiting consultants to the workshop provided scientific information and a knowledge of resources. These consultants came from the University staff and community, from the official and volun-

tary state agencies, and from the U. S. Office of Education.

In addition to the activities listed above health services provided valuable educational experiences. Each participant had a medical examination, a chest x-ray, a Snellen eye test, an audiometer test, and went through the cancer detection center in Durham.

Continuous evaluation by staff and participants was another valuable experience. This helped to keep the plans "up-to-date" to meet the needs of the participants.

Near the end of the session a period was spent in discussing the ways of working "back home." This discussion revealed that each participant had concrete plans for improving the health program in his school and community.

With the interest and enthusiasm exhibited by these participants at the end of six weeks and with their competencies in recognizing and solving health problems, the hope for better health will no doubt be realized for more children in North Carolina.

REPORT OF MEDICAL AND DENTAL EXAMINATIONS IN BEAUFORT, IREDELL AND SWAIN COUNTIES

By CHARLES E. SPENCER, DIRECTOR
MRS. ANNIE RAY MOORE, HEALTH EDUCATOR
School Health Coordinating Service
Raleigh, North Carolina

Medical and dental examinations were given in Beaufort, Iredell and Swain counties as a part of a "Survey of Public Education" made by the Department of Public Instruction under the direction of Dr. Allen S. Hurlburt. The School Health Coordinating Service participated in the study in those phases of the school program relating to the health of children. The survey on the health phase of the school program in Beaufort County, Washington City, Iredell County, Mooresville, Statesville and Swain County was made on 9th grade students, one-quarter of the students in grades 10, 11 and 12 and in the 8th grade in some schools. In addition to medical and dental examinations the same groups were given a health knowledge test and questionnaire of health habits.

The medical and dental examinations were carried out by state and local personnel as follows:

1. Medical examinations were made by

private physicians and health officers.

2. Dental examinations were made by dentists of the Division of the State Board of Health.
3. Audiometer tests were made by local audiometer technicians.
4. Stool examinations and urinalysis were made by public health nurses, technicians and the State Laboratory of Hygiene.
5. Snellen eye testing, measuring of height and weight were done by teachers.

The final report of the "Survey on Public Education," which will be published, will give the number and percentage of children found to have the following defects— skin, scalp, vision, hearing, nose, mouth, teeth, glands, chest and lungs, heart, hernia, genitalia, orthopedic neurological, hookworm, other intestinal parasites, urinalysis, hemoglobin and throat (tonsils).

Summary of Findings of Medical and Dental Examinations(1)

	County		City		Total
	White	Negro	White	Negro	
Number children examined.....	943	213	490	120	1766
Number children with no defect.....	151	42	64	27	284
Number with defects.....	792	171	426	93	1482
Percent of children with defects.....	84	81	87	78	84
Number with one defect.....	397	103	216	33	749
Percent with one defect.....	42	49	44	28	42
Number with 2-3 defects.....	352	61	195	52	660
Percent with 2-3 defects.....	37	29	40	44	37
Number with 4 or more defects.....	43	7	15	8	73
Percent with 4 or more defects.....	5	3	3	6	5
Average number of defects per child....	1.7	1.6	1.7	2.1	1.7
Dental Inspections Only (In addition to those included above)					
Number examined.....	562	142	269	115	1088
Number with no defects.....	104	24	58	13	199
Number with defects.....	458	118	211	92	889
Percent with defects.....	82	84	79	89	82

The following recommendations were submitted to the Director of the Survey of Public Education in North Carolina by the School Health Coordinating Service after a careful study of the findings of the examinations. These recommendations are subject to change by the Study Committee before the report is published.

1. Schools should teach the importance of the medical examination and what constitutes a good medical examination. A few pupils were reported as failing to cooperate in some of the phases of the medical examinations in this survey. This may have been due to their not understanding the importance of a medical examination and what constitutes a good examination.
2. Schools should teach the importance of getting defects corrected early. When these defects are allowed to go uncorrected in many cases they are injurious to the pupils' health and they become more expensive to correct.
3. Schools should cooperate with health departments to assist parents and pupils to get in touch with available services to get defects corrected. In cases where financial assistance is needed, schools and health departments

should assist parents and pupils in locating existing available sources of funds for corrections including School Health Funds which have been appropriated for this purpose.

4. Schools should teach the importance of and should put into practice health measures to help prevent defects. For example, to help prevent defects in teeth stress should be put on such things as:
 - a. Visit the dentist regularly.
 - b. Refrain from eating too much candy, cake, carbonated drinks and other sweets.
 - c. Eat a good balanced diet.
 - d. Clean teeth immediately after eating.
5. Information is not available in this study to show how long these defects have been present. However, other studies, for example, the study of Hagerstown, Maryland which showed that many defects present at the time of examination for the Armed Services had been present from early elementary school. Therefore, it seems reasonable to assume that the same may

(1) Complete examinations were not given all children because of absence from school when certain parts of the examination were given.

be true of at least some of the defects found in this survey. This being the case effort should be increased in both elementary schools and secondary schools to carry out the above four recommendations.

6. There should be a good medical examination for all 9th grade students for the educational opportunities as well as to discover defects. As was found in this study as soon as 9th grade pupils in one county were found to need defects

corrected, pupils and parents followed through to get the corrections done by the family physicians or some specialists referred to by the family physicians. It is recommended that the examinations be in the 9th grade in high school because that is the last grade in school where a health course is required and it leaves time during the high school life to follow through to get corrections done.

TEACHER SCREENING AND OBSERVATION OF SCHOOL CHILDREN

By ANNIE RAY MOORE, HEALTH EDUCATOR
School Health Coordinating Service
Raleigh, North Carolina

To know the children better and to find their special health needs are very good reasons why teachers screen and observe their children.

"Screening means picking out those children who need special teaching or medical care." By taking a good look at all the children to find out which ones do need help, the teacher learns many things about those who do not appear to have any special problems.

One of the most valuable resource persons to the teacher in this program is the public health nurse. The teacher and nurse make a team to work together to find those children with special health problems. After these defects and problems have been found, the teacher and nurse work together to get something done about it.

When the teacher has completed her first screening in the fall (usually during the first month or six weeks of school), she arranges a conference with the nurse if possible. Together they go over problems of the children together. Teacher and nurse decide which children should be referred for medical examinations either to their family physician or to the Health Department.

After the medical examination has been held, the teacher and nurse work together to follow up on recommenda-

tions by the physician. The teacher is in a key position to influence children to get corrections done. The nurse does an invaluable service through her home visits to interpret needs to the parents.

The Screening Record. In order to do the best job of teaching and guiding a child in health activities, it is important to know what has gone before. Therefore it is essential to have some kind of record.

The "North Carolina Teacher Screening and Observation Record" has been developed to help the teacher find those children who need help and to keep a record of what is done about it. For several years most of the counties have used the "Health Appraisal Form"—a one-year type teacher screening record. During the past year "the North Carolina Teacher Screening and Observation Record" has been developed to take the place of the one-year type. These are now being printed and will be ready for use this school year. A bulletin containing suggestions for use of the record has been prepared.

County and city school superintendents may order these records from Mr. L. H. Jobe, Director of Publications, State Department of Public Instruction, Raleigh. These forms may be purchased at cost out of school health funds.

The teachers and nurses in North Carolina deserve a great deal of credit for the tremendous progress that has been made in the screening program in North Carolina in recent years. And by progress we mean the large number of children who are receiving individual

attention in finding their health needs.

With school health funds available to help with some of the follow up and with the increased interest and effort on the part of teachers and nurses, many more children will have opportunities to improve their health and to get corrections made early.

HEALTH ASPECTS OF ATHLETICS

By TAYLOR DODSON

Advisor in Physical Education
State Department of Public Instruction
Raleigh, North Carolina

The last fifty years has been a period of phenomenal growth in athletics in the United States. This athletic competition in our North Carolina high schools is part of the American tradition and is no doubt the natural end result in a country which has built its greatness upon a competitive system of capitalistic philosophy.

Educators and laymen alike agree that athletics have an important and vital part in the program of education for children and youth, if athletics are used to develop and promote worthwhile educational goals. If this function is served the misuse of athletics for the glorification of a coach, school or faculty will not be as prevalent as it too often is at present.

The student is the most important consideration in the athletic program. His welfare is of paramount importance and the operation of the athletic program must be planned with this in mind. Activities must be selected and conducted on the basis of their contribution to the purposes of education. Mere participation in an interschool sports program will not necessarily result in the desired outcomes. If these outcomes are to accrue the program must be administered by high quality leadership according to nationally recognized standards of desirable competition.

Education must seek to meet the need of individuals. This means that the needs of the physically handicapped

student must be met as well as those of the highly skilled individual who wants competition with others of superior ability. This competition is, or should be, an integral part of the total program of health and physical education. The competitive interschool program must be the outgrowth of a broad program of instruction for all students which is supplemented by a varied intramural and recreational program for those who desire and need additional activity. The interschool program participants represent the upper ten per cent in athletic ability, and they should not receive an undue proportion of the instructional time, facilities and equipment.

Interschool leagues and highly competitive athletics should be confined to high schools. They are inappropriate for children of elementary school age. It is important to remember that children of this age are going through a period of rapid growth with consequent bodily readjustments, emotional stress, mental and social readjustments. It is felt that during this period when there is only partial ossification of bones, there is particular vulnerability to joint injuries with a healing hazard after injury to the growth areas of these bones which cannot be disregarded.

All parents like to see their children strong, healthy and physically skilled. Most adults enjoy seeing youth in action. Efficiency in athletics, precision in executing intricate plays, and win-

ning interschool contests which cater only to the strong and skillful are not enough. Basic, fundamental skills should be taught to all students. Unless the total welfare of every student is considered and there is cooperation on the part of all school personnel, many students will be neglected.

Physical activities, properly conducted, may contribute to pupil health and developmental needs, lead to more wholesome recreation, serve as a motivating force for student participation in other activities and foster school-community spirit. Improperly conducted, they will surely lead to over emphasis on winning teams, long schedules, many tournaments, loss of school time on long trips, grudge games, unsportsmanlike conduct, riots or near riots, and exploitation of boys and girls.

In order to protect the health and insure the safety of participants and at the same time promote an educationally sound athletic program, the following standards of athletic competition have been proposed by a committee of school administrators.

1. All schools must, if they participate in any interscholastic sports program, conform to the following eligibility requirements:

a. A player must be a regularly enrolled member of the school and his parents or guardian must reside in the same school district.

b. A player must have been in attendance for at least 60 per cent of the previous term at an approved high school.

c. A player must secure passing grades on at least three courses each term. At least one of these courses must be one that is required for graduation from high school.

d. A student, upon entering grade 9, is eligible for competition on high school athletic teams only during the succeeding eight consecutive semesters or terms of 90 days each.

e. No student may participate in high school athletic contests who is 19 years of age before July 1 of the fiscal school year.

f. No student may participate in

school contests after graduation or after being eligible for graduation from high school.

g. No students who have enrolled in a college, or who have signed a contract for professional play will be eligible for high school competition.

h. Students who have participated in all star games are ineligible for further participation in that particular sport.

2. State school laws require that all gate receipts from athletic contests be handled by a bonded school treasurer.

3. No more than one football, two baseball, two basketball games, two tennis and two golf matches per week may be played. It is strongly recommended that girls' basketball games be limited to one a week.

4. Limit the season's games to ten football, 20 basketball and 20 baseball. It is recommended that girls' basketball be limited to 14 games per season.

5. Soccer, track, wrestling, swimming and other interscholastic sports should be limited to one meet, game or match per week. No boxing.

6. No spring football.

7. No practice games except intersquad games prior to the regular schedule of games.

8. No games played before school opens or after school closes.

9. No post season games except county or state play offs. No regional or state championship games for girls.

10. No players to be approved for post-season or bowl games.

11. Trips that involve overnight travel and out of state games are strongly discouraged.

12. No tournaments or games sponsored by organizations or individuals other than bona fide public schools may be entered.

13. No more than two tournaments a year may be entered in any one sport. Girls are limited to participation in one tournament.

14. Coaches must be certificated teachers who are bona fide members of the school faculty.

15. It is recommended that girls teams be coached by women teachers and re-

quired that a woman teacher accompany the team on all trips and be present when games are played.

16. All players must receive a medical examination prior to the beginning of practice in any sport.

17. Players must receive a medical examination prior to his or her return to play or practice following a serious injury or illness.

18. It is recommended that players be covered by adequate medical and accident insurance and that medical aid be immediately available at all games involving body contact.

19. Practice in any sport may not start before August 15 and at least three weeks practice must precede the first game or contest in any sport.

20. Tournament play should be limited to three days in any week and there should be at least 24 hours between successive contests played by a team. Under no conditions should there be more than one track meet or football game in one week.

21. Interschool competition for boys and girls in grades one through eight is strongly opposed and it is recommended that this practice be discontinued. It is also recommended that intercity, intercommunity and interschool games between teams composed of elementary school age children sponsored by community organizations be discouraged in every way possible.

22. It is recommended that violation of any of the above regulations would forfeit the school's right to participate in interschool athletics for a specified period of time.

All of the above regulations are aimed at safeguarding the health and welfare of the individual player. Numbers 16-20 are more directly related to the health of the students. Other considerations which are of vital importance to the health of team members include such things as clean uniforms for practice and play, adequate dressing and shower facilities which are kept in a sanitary condition, provision of clean towels, individual paper cups for water during

games, adequate sleep and rest, length of practice periods, amount of dust and dirt on gymnasium floors, protective equipment for hazardous games, and checking to see that students who are actually ill do not participate. Such are the duties of teachers and principals.

There is more involved in safeguarding the health of school children than meets the eye of the casual observer as can readily be seen from consideration of the above paragraph. It is the responsibility of all the people in the community to demand that athletics be conducted according to safe and sane principles. It is also our responsibility to refuse to condone anything that fails to measure up to the best in terms of safeguarding the welfare of boys and girls.

SEPARATE BABIES FROM TB MOTHERS AS PRECAUTION AGAINST DISEASE

Babies born of tuberculous mothers who are removed from contact with the mother immediately after birth do not contract the disease, according to three pediatricians.

Drs. Bred Ratner of New York, Alexander E. Rostler of Fall River, Mass., and Pierre S. Salgado of Port-Au-Prince, Haiti, writing in the *American Journal of Diseases of Children*, added that with proper diet these infants will grow and develop the same as infants born of healthy mothers.

According to the article, the incidence of prematurity in offspring of tuberculous mothers is exceedingly high, ranging from 23 to 64 per cent, depending on the severity of the disease in the mother.

The *American Journal of Diseases of Children* is a publication of the American Medical Association.

Don't let your children play with fireworks on the Fourth of July, the National Safety Council suggests. The youngsters—and you, too—will get a bigger thrill from a public display. And it's a lot safer.

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The

Health Bulletin

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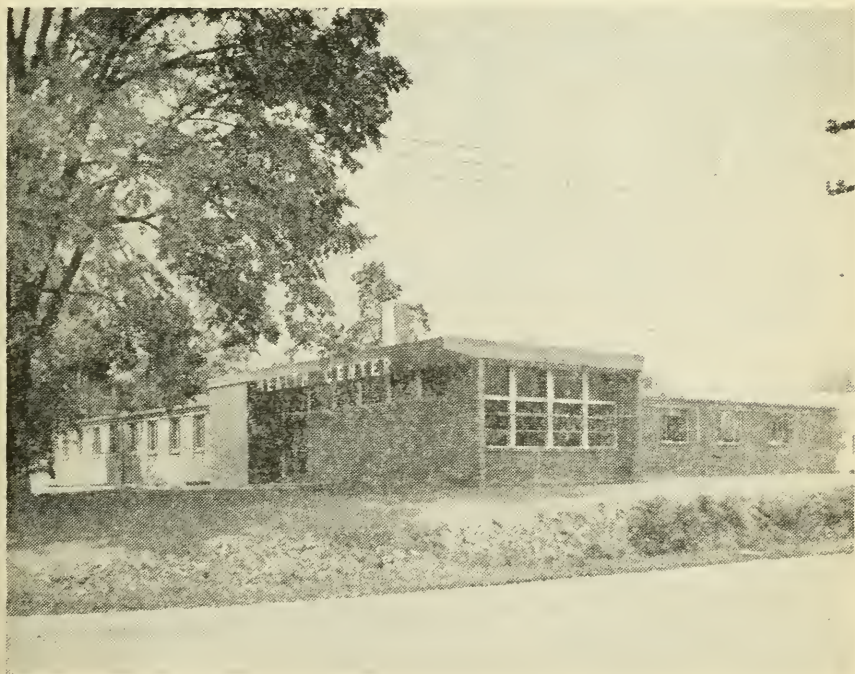
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HALIFAX COUNTY HEALTH CENTER

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FREE HEALTH LITERATURE

The State Board of Health publishes monthly **THE HEALTH BULLETIN**, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

Adenoids and Tonsils	Hookworm Disease	Typhoid Fever
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SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, N. C.

Prenatal Care	First Four Months
Prenatal Letters (series of nine monthly letters)	Five and Six Months
The Expectant Mother	Seven and Eight Months
Infant Care	Nine Months to One Year
The Prevention of Infantile	One to Two Years
Diarrhea	Two to Six Years
Breast Feeding	Instructions for North Carolina Midwives
Table of Heights and Weights	Your Child From One to Six
Baby's Daily Schedule	Your Child From Six to Twelve
	Guiding the Adolescent

CONTENTS

Page

Summary Of Highlights Of Meeting Of The North Carolina Public Health Association	3
Veterinary Public Health	6
In-Service Education For Public Health Nurses.....	9
Major Phases Of The Public Health Program In Halifax County.....	12

THE Health Bulletin



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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

SUMMARY OF HIGHLIGHTS OF MEETING OF THE NORTH CAROLINA PUBLIC HEALTH ASSOCIATION Winston-Salem, September 13-14-15

BY M. B. BETHEL, M.D.
City Health Officer, Charlotte, N. C.

Having come again to Winston-Salem for our annual meeting, having experienced a most delightful and profitable session and having been immeasurably enriched thereby we must first of all commend our governing board for their wise decision to meet here on this occasion.

President Parker has done a magnificent job. It is obvious that the Association's guiding board, and the committees, and those responsible for this program have supported him well. Occasions such as this do not just happen. They are slowly and painstakingly, and even painfully put together.

Called upon to sum up the highlights of this meeting, I approached the job with a certain integrity. I paid attention what was said, made notes and after each session wrote copiously, recording my impressions with fidelity. There were scouts who brought news of the several section meetings.

It boils down to this. There was no single thing said that should have been left unsaid. Some speakers were more eloquent, to be sure, but all had worthwhile points to make. We are all about alike.

Erudition is no indicator of sincerity nor is accomplishment an accurate gauge of effort. If I select, therefore, certain things or people for comment

please do not take it to indicate that unmentioned effort went unappreciated. Rather construe it to mean that any contribution you may personally have made was above reproach, and cannot be improved or elucidated by criticism or comparison.

When the first Session was called to order and the conclave was formally under way, there was a fitting levity to grease the initial creaking of the wheels. His Honor the Mayor didn't show up to award the key to the City nor did the State's Health Officer arrive in time to receive it—but no matter. I doubt if Mayor Kurfees could have spoken half so well as his emissary and certainly none in our midst can match the McPheeters for a gracious reply.

Dr. Mordecai on behalf of our host city issued a further welcome that was the epitome of something or other. A mixture of sagacity and wit and withering scorn it should be duly chronicled and preserved through the ages.

Prior to his presidential address Mr. Parker deprecated such effort on the part of our chiefs and suggested that this annual custom be abandoned. He then proceeded to give able testimony to refute the cause he had espoused, and made us a speech which was the essence of discernment and practicality. Weighted, quite understandably, with

sanitation's viewpoint his central theme was delivery of public health programs that hit their marks; for the good of the people and not for enlargement of the budget nor for personal aggrandizement.

And indeed this was, in substance, the gist of the Second general session's program on civil defense—Public Health well done is directly in line with civil defense, except that something else must be added and an extra measure of service must be delivered. Public Health workers generally share a peculiar dedication. Most could do half as much work and still hold their jobs. Half again as much will be required in civil defense preparation, and unlimited effort will be our lot in the event of military disaster. The participants, representative of each of the several activities in organized public health (except for the laboratory which was not accounted for) told of plans that have been made locally or statewide, and offered suggestions for the benefit of their respective colleagues. Dr. Bosley, whom I delight to call our prettiest doctor, left us in wonder at the prospect of serving a meal, in the midst of carnage and disorder, without heat or water to prepare it.

The Third general session, on Thursday evening, as the second had been, was under John Wrights gracious and purposeful presiding. With neither dillying or dallying, the program began only a few minutes late and ended exactly on time.

Though there had been changes in the lineup prior to the game we had the first team in that night and the program was excellent, but quite beyond recalling in any detail.

Last year I was filled with antagonism as several fairly literate but uncomprehending newspaper editors told us how to run our business. This year I was swept along in the tide of understanding and helpfulness manifested by the panel members. Dr. Robert moderated a not immoderate group, with sparkle and zest. Dr. Beamer, aside from anything he said, even his jokes, exhibits medical attitudes and public

health appreciation far superior to that which we are accustomed to encounter. Mr. Gibson, the school superintendent member of the panel, was completely wholesome and refreshing in repeatedly affirming his faith in the rising generation. President Messick, manifesting the profundity expected of a college president, outlined teacher training in matters of health that should prove simultaneously the goal and the despair of other educators to achieve. I have purposely saved till last the delightful Dean Elizabeth Kemble from the school of nursing at Chapel Hill. Charming in appearance, in personality sublime, and with a deep throaty voice that causes listeners to hang onto her every word, it is obvious that God put brains in her head instead of wheels.

What did all this illustrious panel have to say? Why—simply that they understood, in general terms, the breadth and scope of our problems and that, insofar as they were able in their respective fields, they would help us solve them.

Came Friday morning and the Section meetings. The sanitarians led off with J. M. Jarrett, and up on the roof the big guns boomed all day long. Dr. Clyde Erwin, the Honorable Brandon Hodges, Mr. James King down from Ann Arbor, and Emil Chanlett from Chapel Hill painted the picture of the sanitarian and what he ought to be.

The health officers, filling their room to overflowing, divided their time between venereal disease, mental hospitals and alcoholic rehabilitation, and flouridation of water supplies. Heartening it is to note that all venereal diseases are on the way down, though distant is the day when they can be counted out. Dr. David Young had a less rosy picture to paint about his mental institutions and about reclaiming alcoholics, but even so we seem in North Carolina to be able to maintain a tag end position in the order of the States without great danger of dropping clear out of the race. We cannot, however, even thank God for South Carolina. Whether Mississippi has forged ahead he did not disclose.

Fluoridation of communal water sup-

plies was listed as an ever more promising measure of caries prevention—a potent weapon likely to come into wide acceptance in North Carolina as it is doing elsewhere.

The Secretaries were up and about quite early Friday morning, to breakfast together. Thus fortified, and ere the tedium of the day benumbed them, they plunged heroically into the monumental task of "Records and Reports Requirements of the Federal Agencies." That, I submit, is the most ambitious undertaking of any of the Sections.

The Laboratory Section pursued two topics—Public Health Aspects of Frozen Foods, and The Fluoridation of Water. In the eyes of their speakers the typical frozen food and the usual locker plant presented no problem that could not be handled through application of existing Food and Drug laws and of current sanitation procedures. They were somewhat more at sea about perishable manufactured products such as salads, spreads, and the like and had to face up to a certain inability to cope with the problem, in the absence of standards and without adequate prior experience.

Water fluoridation, in these learned precincts long since accepted, was studied from the point of technical application rather than from the standpoint of "to be or not to be." There is no longer any question.

The nurses spent their morning reviewing the mid-century White House conference on children and youth, and in considering its aftermath in North Carolina. It is perhaps enough that so large a group was engaged in this pursuit but unfortunate that more of us could not have a fuller comprehension.

Dedicated to this proposition, "for every child a fair chance for a healthy personality" it is devoutly to be hoped

that such success will obtain in the wake of the 1950 conference as has occurred following its several predecessors.

With all sections now accounted for except the Health Educators I fear there is no accounting for them. With characteristic enterprise they have tackled civil defense. They have lived it, practiced it and preached it; before, now, and undoubtedly hereafter; so that at this convention they are in far more formidable array than Stalin and his legions. Since we shall undoubtedly hear more from them when we get back home and since they have not concluded their deliberations I do not feel derelict in my duty by not informing you more fully concerning their activity.

Last night combined trivia and triumph, frivolity and the fruitful. The distinguished were accorded their due recognition, and festivity all but replaced solemnity. Dr. Hubbard, disclosed an unusually accurate appraisal of public health in that he said it grows by evolution rather than by revolution; that it is now, and will ever increasingly become, a mainstay of civilization.

The discourse of this morning you have heard and it needs no summary. Coming from a Tarheel so illustrious it deserves top billing and would be a highlight on any program.

There remain a few items of business before us. At this juncture a year ago there were undercurrents of dissension, strident voices raised in discord and tempers poorly bridled. May I presume, as elder statesman by virtue of previous service, to counsel an end to these things. Honest differences of opinion there must surely be, but unity we must have rather than division.

Freedom to speak implies also the right to keep quiet. Follow your inclinations to either course, but if to the former, do it with moderation.

VETERINARY PUBLIC HEALTH

BY MARTIN P. HINES, D.V.M., M.P.H.
North Carolina State Board of Health

There are today over 80 diseases of animals that are transmissible to humans, either directly or indirectly. Many of these animal diseases are found only in remote, backward areas of the world, where peculiar habits and customs, together with a low standard of living, make control and eradication almost an impossibility.

The field of veterinary public health is not new, by any means. The close relationship between animal and human diseases has been recognized for a long time. Slowly we have come to realize that a sound, healthy animal industry is essential to a sound economy and a healthy population. The control of such diseases as cattle tuberculosis, anthrax, glandus and encephalomyelitis are examples of the accomplishments of veterinarians in public health, not to mention the important programs in the field of milk and meat sanitation. Yet, with this great progress in the past, there still remains a long way to go in protecting the human population against diseases of animal origin.

Veterinary Must Set Up

Recently, the North Carolina State Board of Health established, for the first time, a Veterinary Public Health Section which will operate under the Division of Epidemiology. It will be the policy of the Veterinary Public Health Section of the State Board of Health to aid the local county and city health departments in establishing adequate rabies control programs, and to be available for consultation in regard to any animal diseases transmissible to human beings. The duties and responsibilities of the State Public Health Veterinarian will also include coordinating the efforts toward local control of the various animal diseases that are transmissible to man, by encouraging accurate reporting, and by preparing and distributing educational material throughout the state.

The initial project of the Veterinary Public Health Section will be to establish a state-wide rabies control program, with operational phases carried out through the local health departments. The great number of rabid animals that are reported annually is a disgrace, especially when we have the adequate tools at hand to control or eradicate this dreadful disease. Today only 12 of the 48 states are free of rabies and only 12 of the 36 states, with rabies, have adequate programs. Each year over 30,000 people in the United States take the series of vaccine inoculations, as a result of being exposed to rabid, or suspected rabid, animals. This series of inoculations is long and often painful, and could be entirely eliminated by adequate rabies control programs. The most alarming fact at the present time concerning rabies is that, during the past 15 years, the number of rabies cases in animals has increased. Local rabies control programs are best carried out on a county-wide basis. Since the rabid dog does not respect boundaries and often can run the length and breadth of the average county, successful results cannot be expected if a program is limited to a city or town, without including the rural or suburban areas of that county.

Local Program Encouraged

There are 100 counties in the state of North Carolina, and the local public health services are provided for all of these counties, through 67 local health departments. On April 1 of each year, many of these health departments organize and promote programs to control rabies. In past years there has been a tendency for the public to "brush aside" these programs in many counties in which rabies in animals has not been prevalent. It is not uncommon to hear one say, "Why bother with the vaccination of my dog when there has not been a rabid dog in the county for years?"

This attitude makes a community "ripe" for a rabies epidemic. We know, from experience with the various epidemic diseases of both men and animals, that, in order to be successful in preventing a disease, by vaccination, from assuming epidemic proportions, there must be at least 80 per cent of the susceptible dogs vaccinated against the disease. It is rather difficult for the local health departments to accomplish this high percentage of vaccinations of dogs, especially since the vaccination must be repeated each year. Unfortunately, at the present time, we do not have a rabies vaccine for dogs that will give protection against the disease for longer than one year, but research is being conducted in this field.

It should be emphasized that when the public develops a lack of interest in rabies programs because the danger is not immediate, there can be only one result: the dog population in that area becomes highly susceptible to rabies, because of its lack of immunity, through annual vaccination. In such instances, the infection only needs to be introduced by one or two rabid animals from other areas to start a vicious epidemic.

Because the public has not always been properly informed regarding rabies, there is a great need for accurate information as to the procedure to follow in disposing of dogs that have bitten humans. This is paramount, if they are to avoid a lot of needless antirabic treatment. A dog that has bitten a person should never be killed, but should be placed in a secure pen with plenty of food and water. If possible, it should be placed in the hands of a veterinarian for observation. It should be observed for 21 days and, if alive at the end of 14 days, the animal may be considered as being not infected with rabies. Most animals that bite a person while showing symptoms of rabies will die within 4 to 6 days after biting. In case it is impossible to capture a dog alive, it should never be shot through the head, because this may make examination of the brain for rabies impossible at the State Laboratory of Hygiene. If a person has the

misfortune to be bitten by a dog or other animal suspected of having rabies, he should first wash bite wound with soap and warm, running water and then consult his physician or health department immediately for advice regarding care of the wound and obtaining antirabic vaccine treatment. When a dog that has bitten a person gets away, it is usually necessary to assume that the dog was rabid and to have the anti-rabies treatment administered. The decision must be made by the attending physician as to whether or not the treatment is given in such cases.

Rabies Control Measures

There are three simple measures which, if properly carried out, will adequately control rabies. The first is that of *annual anti-rabies vaccination of all dogs*. The importance and value of this measure has been proved beyond all doubt. This measure is a "must" in a rabies control program.

The second measure is *the impoundment of all ownerless and stray dogs*. It is these dogs that will not be vaccinated, and very often it is the stray dog that is responsible for the spread of rabies. This measure requires the operation of a humane shelter where the stray dogs are kept for a specified period of time and where, if they are unclaimed at the end of that period, they are humanely destroyed.

The third measure is *registration of all dogs*. This measure has its importance, in that it establishes responsibility for dog ownership, assures an accurate dog census, and identifies unwanted strays.

Although the dog is the most important animal to consider in any rabies control program, there are several other animals, including wild animals, that are important in the spread of rabies. Rabies in foxes has become very important in some of the southeastern states where regions have become overpopulated with foxes. Foxes transmit rabies by biting cattle in these areas, resulting in a great economic loss to the farmer. Rabies in foxes also presents a problem in the control of the disease in dogs, since infection in the wild life

means a constant threat to the dog population, by the introduction of the disease through susceptible hosts. This is the reason why control of stray dogs that have not been vaccinated is so important in any control program. In the midwestern states skunks play an important part in the control of rabies, by transmitting the disease to domestic animals. Rabies control programs in the midwest often must take measures to reduce or eliminate the skunk population for effective control of the disease in dogs and cattle. Rabies can be controlled and eventually eradicated if everyone gives his complete support to the local programs organized to defeat this menace.

Brucellosis A Problem

Another pressing problem in the field of animal diseases that are transmissible to man is brucellosis, or undulant fever, as it is known to most people. Brucellosis is a specific infectious disease of animals and man, which is caused by micro-organisms, or bacteria. In cattle, the disease is known as Bang's Disease, or contagious abortion; in swine, it is known as contagious abortion; in man, brucellosis is known as undulant fever. The report cases of human brucellosis in the United States have increased from 100 cases in 1929 to more than 7,000 annually in recent years. There were 21 cases reported in North Carolina in 1950. This is a low figure, compared to other states, and can be attributed largely to the low incidence of infection in North Carolina cattle, which is a result of the excellent eradication program that is being carried on by the Veterinary Division of the Department of Agriculture. Because of the difficulty of diagnosing brucellosis in human beings, public health officials realize that the present number of cases that are reported represent

only a small fraction of the actual incidence. Brucellosis is not transmissible from human to human, so we realize today that the control of this disease in humans is dependent on the eradication of the disease in animals, together with the sanitary handling and processing of foods of animal origin.

A Public Health Problem

Brucellosis also affects the public health, indirectly, by the loss of food products from infected herds; for example, in some herds, the milk production is reduced by about 22 per cent and the calf crop by 40 per cent, when there is infection with brucellosis. No one will deny that a reduction of food production seriously affects the public health. It costs the farmers of the United States over \$1,000,000,000 each year to live with this insidious disease. There are generally two ways in which human beings may become infected. These are: First, the consumption of milk or of other dairy products not properly pasteurized from infected cows; and, second, from contact with infected animals and their infective discharges.

To control brucellosis, we must first eradicate the disease from our domestic animals and thus eliminate this reservoir of infection. Until this is accomplished, we can prevent the disease in humans only by using dairy products that have been properly pasteurized; by eating meat products that have been processed under sanitary conditions and which have received proper inspection, and by avoiding contact with infected animals and their discharges. Brucellosis in human beings frequently results in a serious, debilitating, incapacitating illness of long duration. It can be prevented in human beings and eradicated in animals.

IN-SERVICE EDUCATION FOR PUBLIC HEALTH NURSES

BY MARTHA REBECCA SWINDELL, Supervising Nurse
District Health Department
Elizabeth City, N. C.

There has long been a recognition of the need to give Public Health Nurses more security in their role of assistance in clinics. The first step in the development of such a program would be the selection of an area where such service could be concentrated. With this in mind, the Nursing Consultant from Childrens Bureau was asked to come to North Carolina to help develop these plans and the clinic selected for demonstration was the Orthopedic Clinic held each month in Elizabeth City, N. C.

This clinic which serves the north-eastern section of the state comprising the following counties: Dare, Currituck, Camden, Pasquotank, Perquimans, Chowan, Gates, Washington and Tyrrell, has been in operation for many years under the sponsorship of the American Legion and American Legion Auxillary, the Crippled Children's Division of the State Rehabilitation Service, and the local Health Department. Dr. R. B. Raney, (Chief) of Orthopedic Service, Duke Hospital, Durham, N. C., is the Medical Director, and the nursing staff of the District Health Department render the clinic nursing service. Recent addition of physical therapy personnel from the State Board of Health has been included in the service.

In the fall of 1949 the first nursing conference was held to formulate plans for in-service institutes and in May 1950 Miss Coggans from the Childrens' Bureau, Miss Ruth Council and Miss Lilly Fentress from the Crippled Children's Division, State Board of Health, met with the nursing staff that covers this clinic. This fore-runner conference brought out the following points: (1) The Public Health Nurse is not secure in this clinic due to lack of knowledge of orthopedic terms; (2) teaching methods and content; (3) clinic operations

and the specific place of the nurse in the clinic. These basic needs we would recognize as applicable to all clinics, and the principles as applying to all services the same.

It was brought out in group discussion that the over-all emphasis of review should be on the total growth and development of the child. To develop this program the following points would be kept in mind:

1. Selection of an area where service could be concentrated.
2. Determine with nurses how needs may be met.
3. Plan for staff education that will meet the need.
4. Outline of staff education program.
5. Evaluation to see if this may be used or is applicable to other clinics.

Since the selection of area had already been made, the next step was to determine from the nurses themselves what their needs were, for only with this information could ways and means be devised to meet those needs. I would like to discuss the general feelings expressed by the nurses.

Better methods of case finding were felt to be of great importance. If the nurse is to recognize the deviation from the normal, she must be entirely confident in recognition of the normal. The preventive aspects of orthopedic nursing would certainly require better knowledge of the *Evaluation of the Newborn*, for which no better source can be used than Dr. Ethel Dunham's splendid book with which every nurse should be completely familiar. Not only in the orthopedic clinic itself but in field and other clinic services the importance of good history taking, with special emphasis on birth history (length of labor, presentation, size, forceps, bleeding, etc.) needs to be

stressed, and would very likely prove to be of great importance in case finding. Recognition of the import of the history would enter into the nurse's interpretation to the family and the patient, and the preparation of the child for the clinic experience. It is essential that we do not lose sight of the fact that this experience to the child is of great significance since it cannot remain an isolated instance but enters into the total needs of the child. The emotional and social needs of the patient are the same as those for the nurse, and with this transferral of understanding the nurse can better recognize the patient's and family's degree of acceptance of the handicap. We must recognize fears and anxieties in their proper relation to the total needs of the patient, and the significant warning signs such as belligerence, day-dreaming, reversion to infantile habits, etc., as basic expressions of fears that we can help to overcome or prevent by a better understanding of the child himself. It is essential that we be able to give the mothers and the patients a comprehensive and understandable interpretation of the treatment that has been recommended and be sure that it is understood. The nurse, of course, would be expected to follow the child in home visiting as the need indicated, but the original interview in the clinic has a different impact upon the patient and family than is expected in subsequent visits. Full interpretation would also mean that the nurses have complete and up-to date information of all resources available for the complete recovery of the patient. When we fully understand that any patient is a person with a special need and that our professional duty is to be able to help that individual to find all methods of meeting that need, then our report will more closely approach the optimum level that will affect not only the growth of the patient, but contribute immeasurably to the growth of the nurse herself. In our knowledge of resources we must also take into account the community attitudes which will affect the rehabilitation of the patient or his development

as a self-supporting individual. We may often find that our communities are greatly in need of education along these lines.

To emphasize the point that nurses are aware of their own needs in increasing their professional abilities, the following questions were brought out in regard to orthopedic nursing service specifically:

1. What is being done in other states and advised by progressive educators about the child who is too slow to keep up with normal children, but has no need to be separated from his family by being placed in a special institution?

2. How can the Public Health Nurse help the school child or family with such a situation where special classes are not available?

3. How can the Public Health Nurse help in situations involving delayed or defective speech when special classes are not available?

4. What are some practical things that can be done about pigeon toes?

5. How can we prevent or help early curvature of the spine?

6. What is the corrective exercise for flat feet; clinical significance and treatment?

7. What age is the best for correction of club-foot?

8. Can cleft-palate and hair-lip be corrected at the same time?

9. Should pes planus 3rd degree be corrected?

10. What nursing care would be given to the rheumatoid arthritic patient?

11. Are braces advisable for faulty posture in children?

12. Is it possible to correct clawfoot without surgery?

13. What instruction should be given a mother taking her child home after reduction of congenital dislocation or hip?

14. What is the most effective procedure to apply a wet hot pack to an inflamed joint?

15. How is an elderly patient, recently having had a hip cast removed, prepared to begin getting up and using crutches?

16. The need for discussion of the

normal growth and development of the child.

17. Which is the authoratative thinking, the discipline of non-discipline of the child?

18. Discussion of congenital dislocation of the hip joint and treatment.

19. Discussion of osteomyelitis and treatment.

One point brought out very clearly by the nurses was their feeling that pediatric service should be a part of the orthopedic service, or vice versa, but of course the planning of such would be departmental with the Health Officer, attending Orthopedist and Pediatritian in cooperation with the Crippled Childrens Section of the State Board of Health. Another main point was the need for post-clinic conferences with the attending orthopedist in review of outstanding cases.

Since the original objective was to improve the orthopedic clinic service routine we felt there were four main objectives to plan for. There were (1) Increased knowledge of the nursing personnel in the clinic service; (2) Home service; (3) Follow-up; (4) Correlation of orthopedics into all services. It would naturally follow that the next step would be to determine how these objectives might be reached in a given period of time. We hoped that we would be able to plan ten all-day conferences beginning in November 1950 and ending in the summer of 1951, and as a starting point we had to examine the resources available and arrange appointment times. Specialist service available from the state level would be Pediatritian, Medical Social Worker, Nutritionist, Psychiatrist, Clinical Pediatric Nurse, Psychologist and specialist in the teaching field from East Carolina Teachers College, Greenville.

Correspondence was begun with various people and although some of the points could not be included in this first program the following conferences were planned and held:

Normal Body Mechanics and Structural Functions—November 10, 1950

Miss Jessie Stevenson, Vanderbilt University, Nashville, Tenn.

Post - Orthopedic Clinic Conference — November 29, 1950

Miss Ruth Council

Miss Lillie Fentress, State Board of Health, Raleigh, N. C.

Aspects of the Medical Social Worker—January 31, 1951

Miss Virginia Elliott, State Department of Welfare, Raleigh, N. C.

Miss Katherine Barrier, State Department of Health, Raleigh, N. C.

Maternal and Child Health—March 13, 1951

Dr. Sidney Chipman, School of Public Health, Chapel Hill, N. C.

Miss Jean Ribentisch, School of Public Health, Chapel Hill, N. C.

Mental Health—April 23, 1951

Dr. R. M. Fink, State Board of Health, Raleigh, N. C.

Rehabilitation—May 31, 1951

Miss Evelyn Johnson

Miss Lillie Fentress

Miss Ruth Council, State Board of Health, Raleigh, N. C.

The nurses from the counties served by this orthopedic clinic were invited to attend each of these institutes and the attendance was most gratifying. However, regular schedules in their departments made this impossible in some cases, but it was vividly brought out in the evaluation of the program that all of the nurses felt that they had profited a great deal by this review and hoped that some of the remaining problems could be included in a program of study in the coming year. Each nurse was asked to submit a brief resume of the program and how it had helped her in her own services. Some of the reviews were brief, others in detail, and some of the nurses did not respond, but the consensus of expression was that they felt much more secure in patient-nurse relationship. It is sometimes hard to bring out specific points and tie them up with discussion points in previous group work, but it has been noticeable both in clinic and field work that these nurses have shown a more poised, professional attitude in their work. Their increased confidence in themselves has been noted especially in the clinic service. I would like to quote from some

of the reports as I feel they rather clearly summarize the reports received from the other nurses.

* * * *

"It is my opinion that in these series of meetings the instructors have tried to accentuate the normal and to review the normal and preventive aspects of orthopedic nursing and allied health functions."

* * * *

"I have given the medical social worker some very unjust and destructive criticism because I did not know their duties and limitations and laws under which they had to work . . ." "before this discussion (Miss Stevenson) I have never been able to recognize a mild club foot; before this explanation all infants had deformed feet . . ."

"Dr. Chipman's and Miss Rebentisch's discussions were directed toward the growth and development of the normal child from infancy. This meeting meant more to me than any I have attended as I have used part of the information gained in several talks I've had to make since then . . ."

* * * *

"The psychological aspect of the entire series was one of the most striking points to me, and I feel impressed me most because this is one of the phases of the program that is neglected by so many Public Health Nurses . . ."

* * * *

"The institutes I have attended in the in-service educational program have been very valuable to me. I believe it is the only way to keep Public Health Nurses informed and alert on a variety of subjects. The information obtained I have been able to use in interviewing in the clinics, well-baby, prenatal, orthopedic and home visiting. I believe the time spent in these institutes has been well worth while."

* * * *

"I believe that the Public Health Nurse in the field who is chiefly concerned with getting a job done, and often by antiquated methods, is especially in need of in-service training to keep her abreast, to a degree, with the rapid changes in all fields, and, of course, to review the basic things that are lost by non-use."

* * * *

It has been especially gratifying to feel that the group of nurses in this area of the state have responded so well to a program of in-service education, and plans are being made to carry on this type of work. We all feel there is much yet to be reviewed, but recognize that limitations over which we have no control may delay part of the program. We are especially grateful to those people who gave so freely of their time and effort to make this program successful.

MAJOR PHASES OF THE PUBLIC HEALTH PROGRAM IN HALIFAX COUNTY

BY ROBERT F. YOUNG, M.D., M.P.H.
County Health Officer

The present staff of the Halifax County Health Department consists of the following positions: Health Officer, Supervisor of Nurses, Senior Public Health Nurse, three Junior Public Health Nurses, four Registered Nurses in Public Health, Senior Sanitarian, Junior Sanitarian, Assistant Sanitarian, Junior Public Health Investigator, Junior Bacteriologist, Senior General Clerk,

Junior General Clerk, and two Typist clerks. In addition to the regular personnel, various technical consultants are assigned to the local health department from time to time by the State Board of Health and by other agencies.

The new Health Center located in Halifax consists of eighteen rooms, exclusive of six restrooms, with a total of 5,500 square feet of floor space. In the

clinic area there are four examination rooms equipped with the most modern facilities; x-ray room and dark room with new equipment; laboratory completely equipped for public health laboratory service; library and conference room with facilities recessed in the floor for installation of dental equipment, should a full time dentist become available; two storage rooms; large assembly and reception room; information center; and in the administration section of the building are located the offices for the personnel. This Health Center was constructed under the Federal Hospital Survey and Construction Act as administered in North Carolina through the North Carolina Medical Care Commission. The costs of the building and equipment were prorated as follows:

Federal -----	\$29,348.00
State -----	18,208.10
Local -----	31,442.90
Total -----	\$79,000.00

Public Health is usually defined today as "The art and science of preventing disease, prolonging life, and promoting physical, mental and social wellbeing through organized community effort. Public Health embraces the *total population*, not any particular economic class, race or creed. No chain is stronger than its weakest link. Dr. M. J. Rosenau, in speaking of each person having his share of health said, "These things he shall have as a matter of justice and not of charity."

The Public Health Program of the Halifax County Health Department consists of the following principal groups of services:

I. VITAL STATISTICS

1. Registration of Birth Certificates
2. Registration of Death and Still-birth Certificates
3. Tabulation, interpretation and publication of the essential facts of Vital Statistics

At the present time all births and deaths in Halifax County, with the exception of those occurring in Roanoke Rapids and Roanoke Rapids Township, are registered in the Halifax County Health Department. Moreover, a spe-

cial report is received from the Roanoke Rapids Township of the births and deaths occurring there. Copies of these birth and death certificates are filed in the Health Department, with a second set being filed with the local Register of Deeds, and with the original certificates being mailed to the State Board of Health each month. Certified copies of birth and death certificates occurring after 1913 can be obtained from either the Register of Deeds or from the State Board of Health.

II. CONTROL OF COMMUNICABLE DISEASES

1. Tuberculosis

(1) The Control Program for Tuberculosis includes the early diagnosis of the disease, prompt hospitalization of active cases of tuberculosis, x-ray studies of all contacts, and an intensive educational program, as well as special studies to locate the disease and a rehabilitation program. An x-ray clinic is held in the Health Center every Friday afternoon at one o'clock. Every citizen in Halifax County is entitled to a free x-ray examination in this clinic by appointment.

(2) Special X-Ray Surveys—A Mass X-Ray Survey was held in Halifax County in 1946-47, during which time approximately 22,000 citizens were x-rayed; a special survey in Enfield, January and February 1950, with 3,000 x-rayed; and a second Mass X-Ray Survey in 1951, with approximately 25,000 x-rayed.

(3) Tuberculosis Register—This register contains the names of every known case of tuberculosis in Halifax County, together with all the contacts of these cases, and all other essential data pertaining to the status and progress of these cases of tuberculosis.

(4) Home Visiting—Our Public Health Nurses visit all suspected cases of tuberculosis regularly, so long as they remain at home, and also visit contacts of tuberculosis cases in an effort to get them in to the x-ray clinic regularly for periodic check-ups.

(5) Laboratory Diagnosis—The Halifax County Health Department Labora-

tory is used to assist in the Tuberculosis Control Program in the regular examinations of sputum of patients and contacts.

(6) Halifax County Sanatorium—The Halifax County Sanatorium with twenty-eight beds plays an important part in the Tuberculosis Control Program in this county. Patients are not admitted to this institution until a definite diagnosis of active tuberculosis is made. After these patients are admitted here, they are given the best attention that a county sanatorium can provide. Patients receive essentially the same treatment in the Halifax County Sanatorium as is given in the State Sanatoria, with the exception of major surgery. Dr. Herman Easom of the Eastern North Carolina Sanatorium has commended the officials in Halifax County for the splendid work being done in our sanatorium.

2. Venereal Disease—Venereal Disease Clinics are held regularly at the following points in the county:

Scotland Neck, Halifax County Clinic,
Monday at 1:00 P. M.

Enfield, Municipal Building, Tuesday
at 1:00 P. M.

Littleton, Municipal Building, Tuesday
at 1:00 P. M.

Weldon, Bank Building, Friday at
9:30 A. M.

Roanoke Rapids, Rosemary Clinic,
Friday at 1:00 P. M.

All new cases of syphilis discovered at the present time are referred to the Eastern Medical Center at Durham for treatment. Here a complete course of treatment is given over a period of ten days, whereas, in the past, an eighteen months course was required for the adequate treatment of syphilis in local clinics. A trained investigator interviews each new case of a venereal disease to learn, if possible, the contacts and source of infection in an effort to prevent the spread and to eventually control these diseases.

3. Special control measures are carried out by the Health Department in cooperation with the private physicians in other communicable diseases, such

as, diphtheria, scarlet fever, poliomyelitis, meningitis, typhoid fever and others. As mentioned above, the Halifax County Health Department Laboratory plays an important role in the control of communicable diseases.

III. ENVIRONMENTAL SANITATION

"Sanitation is the quality of living that is expressed in the clean home, the clean farm, the clean business and industry, the clean neighborhood, the clean community."

1. The Halifax County Health Department, in cooperation with the State Board of Health, has an important function in the supervision and control of good handling places, such as, cafes, restaurants, meat markets, hotels, and others. Regular inspections of these food handling establishments are made by our food sanitarian, and a Grade Posted in a Prominent Place in each of these establishments. **EVERY CITIZEN SHOULD TAKE CAREFUL NOTICE OF THE GRADE OF THESE FOOD HANDLING ESTABLISHMENTS WHEN FIRST ENTERING THEM.** Food handler's schools are conducted periodically.

2. Milk Sanitation—Our food sanitarian also makes regular inspections of all milk producers and milk plants within Halifax County and also within the area from which milk is received into Halifax County. Milk is one of the best foods known to man, but it is also one of the best culture media for bacteria known and, therefore, has to be very closely supervised in order to prevent serious milk-borne epidemics.

3. Rural Sanitation—Consultation service is available to all citizens in the county on Safe Water Supplies and on Adequate Sewage Disposal Facilities.

4. Insect and Rodent Control—Important programs are conducted by the Health Department in the control of rats and also in the control of mosquitoes and flies. For instance, a Malaria Control Program is conducted each spring and summer for about five months, during which time all homes in which there have been cases of malaria diagnosed by physicians are

sprayed with DDT. This DDT spraying Program is conducted in cooperation with the Malaria Control Division of the State Board of Health which furnishes a truck and the materials for this work.

IV. PUBLIC HEALTH LABORATORY SERVICES

Reference has already been made to the importance of the laboratory in the Public Health Program. The laboratory in the Halifax County Health Department has recently been added and is one of the best equipped laboratories in a local health department in the State. Public Health is a science that requires exacting procedures in order to procure reliable results. All the laboratory procedures are conducted free of charge except for pre-marital blood tests for which a nominal fee is charged. The pre-marital blood tests are required by North Carolina law, together with physical examinations, before licenses can be issued.

V. HYGIENE OF MATERNITY, INFANCY, AND CHILDHOOD, INCLUDING SUPERVISION OF THE HEALTH SCHOOL CHILD.

1. Maternity and Infancy Clinics are conducted at the following points in the county each month:

Halifax County Health Center, First
Wednesday, at 1:00 P. M.

Hobgood Colored School, Second
Wednesday, at 1:00 P. M.

Enfield City Hall, Second Thursday,
at 1:00 P. M.

Scotland Neck, Halifax County Clinic
Third Wednesday, at 1:00 P. M.

Littleton City Hall, Fourth Tuesday,
at 1:00 P. M.

Hollister Colored School, Fourth
Wednesday, at 1:00 P. M.

At these Maternity and Infancy Clinics complete examinations are given the patients attending these clinics.

2. Immunizations—Immunizations for diphtheria, whooping cough and smallpox are offered free of charge to the infants in the Maternity and Infancy Clinics. The ideal time to begin immunization for diphtheria and whooping cough is during infancy, at about

three months of age. Ideally, infants should be immunized for tetanus at this same time. The child should be given a booster immunization for these three childhood diseases and vaccinated for smallpox at one year of age and again at six years. Approximately eighty or eighty-five per cent of the deaths from diphtheria and whooping cough occur during the first three years of life; therefore, this is the period of life when the protection is needed most against these diseases.

3. Preschool clinics are held each year throughout the county, at which time preschool children are given physical examinations and are given booster doses of diphtheria and whooping cough vaccine and vaccinated again for smallpox. North Carolina law requires all children to present certificates certifying that they have been adequately immunized for diphtheria and whooping cough and adequately vaccinated for smallpox before they can be admitted to school.

4. Considerable work is done in the schools for the children, with the teachers, public health nurses, health officer and family physicians cooperating in the program. Hundreds of physical defects are discovered and corrected annually in this School Health Program. Special programs are also conducted in the schools from time to time, such as the vision clinics which are held in cooperation with the State Commission for the Blind and the Lions Clubs. A Hearing Conservation Program initiated by the Roanoke Rapids Exchange Club is administered in the schools in cooperation with the Division of Oral Hygiene of the State Board of Health and the local dentists. The Kiwanis Club and Woman's Club in Roanoke Rapids sponsor a special oral hygiene program for Roanoke Rapids.

5. Orthopedic Clinic—This clinic initiated and sponsored by the Roanoke Rapids Rotary Club meets monthly, the first Thursday, at the Rosemary Baptist Church, Roanoke Rapids, at one o'clock in the afternoon. This is primarily a clinic for crippled children, but persons

of all ages from this section of the state are admitted to the clinic for free examination and advice. The State Board of Health, the State Vocational and Rehabilitation Department, the Halifax County Health Department, Halifax County Welfare Department and the Northampton County Health Department cooperate in the operation of this clinic.

VI. HEALTH EDUCATION

Health Education of the General Public constitutes one of the biggest problems in Public Health, in that advances in Medical Science and Public Health remain far ahead of the attitudes of the general public. For example, it is well known today that diphtheria could be controlled among children of pre-school age, provided over fifty per cent of this group could be adequately immunized; however, a large percentage of parents still neglect to have their children immunized at the proper age, or even at all, for this dread disease. We know, too, that most of the deaths from cancer could be prevented if only citizens in the cancer age would submit themselves to their physicians or to a Cancer Detection Clinic for thorough physical examinations at least once each year. The same thing can be said of tuberculosis and many other conditions. Therefore, public-health departments today have a big responsibility in educating the public to the advantages offered by present day public health programs. The Health Department has a speakers bureau, two motion picture projectors, a slide pro-

jector, a record player and film strip projector with loud speaker attachment, exhibits, demonstrations and literature on all phases of Public Health and related subjects, all of which are used for promoting public health education.

VII. MENTAL HYGIENE AND CHRONIC DISEASES

1. Principal service in this field at the present time is a Cancer Detection Clinic which meets the first and third Tuesdays of each month at 8:30 A. M., Health Center, Halifax. This clinic is sponsored by the Halifax County Medical Society in cooperation with the Halifax County Health Department, Halifax County Cancer Unit, and the State Board of Health. In this clinic, free examinations are offered to all citizens forty years of age and older, and this service is available not only to the citizens of Halifax County but also to citizens of adjoining counties and Southside Virginia. In addition to this detection clinic, a special project is now being conducted in Roanoke Rapids by the Cancer Mobile Unit, furnished by the State Board of Health, whereby free x-rays of the stomach are offered to all citizens thirty-five years of age and older.

VIII. ACCIDENT CONTROL

Plans are now underway to set up a Pilot Automobile Accident Control Program in Halifax County. This program will be extended to home, school and industrial accidents in the near future. September 25, 1951

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Help FIGHT TB



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FREE HEALTH LITERATURE

The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

Adenoids and Tonsils	Hookworm Disease	Typhoid Fever
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The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, N. C.

Prenatal Care	First Four Months
Prenatal Letters (series of nine monthly letters)	Five and Six Months
The Expectant Mother	Seven and Eight Months
Infant Care	Nine Months to One Year
The Prevention of Infantile	One to Two Years
Diarrhea	Two to Six Years
Breast Feeding	Instructions for North Carolina Midwives
Table of Heights and Weights	Your Child From One to Six
Baby's Daily Schedule	Your Child From Six to Twelve
	Guiding the Adolescent

CONTENTS

Page

Activities of the Tuberculosis Control Section, Division of Epidemiology..	3
Christmas Seals At Work In North Carolina	8
Tuberculosis In The United States Yesterday—Today—And Tomorrow..	10
Keeping Faith	13

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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

ACTIVITIES OF THE TUBERCULOSIS CONTROL SECTION, DIVISION OF EPIDEMIOLOGY

BY WILLIAM A. SMITH, M.D.

State Board of Health, Raleigh, N. C.

1. GENERAL

a. The Tuberculosis Section, Division of Epidemiology, has been in operation since January, 1945. During 1945, this Section X-rayed only 18,242 persons due to a shortage of personnel and equipment. Beginning January 1, 1946, operations became more active and during that year over 200,000 persons were examined.

Prior to 1947, the Section was assisted by the U. S. Public Health Service which furnished both equipment and personnel. In February, 1947 this assistance was withdrawn; and since then, the State Board of Health has used its own personnel and equipment in carrying out surveys. To date, over 1,400,000 persons have been X-rayed by our units; and of these it is estimated that over 42,000 have been re-examined on account of definite or suspected chest disease. Hence, over one-half the X-rayable population of North Carolina has been examined by the State Board of Health.

There are thirteen counties which perform their own X-ray surveys and a large number of counties and cities, 84 in number which maintain active tuberculosis clinics. The people of North Carolina, therefore, are well served with X-ray diagnostic facilities.

The mission of the Tuberculosis Section is to:

(1) Conduct community-wide X-ray

surveys of the general population and special groups. This is done through county or city health officers.

(2) Maintain a consultant nursing service.

(3) Carry out health education in connection with publicity prior to and during community-wide surveys.

(4) Maintain liaison with:

1. State Institutions for better case finding
2. Director of the State Sanatoria
3. State and local tuberculosis associations
4. Local Health Departments for planning tuberculosis surveys and other matters relating to tuberculosis control
5. The N. C. Division of Vocational Rehabilitation
6. The State Board of Public Welfare

Community-wide chest X-ray surveys of the general population are considered "the spearhead of the attack on tuberculosis." Such surveys have been supported by the U. S. Public Health Service for several years and have been conducted by practically all states and territories. It is recognized that the X-ray is the most reliable method of diagnosis of chest disease and offers the best opportunities in case supervision.

A tuberculosis control program is incomplete without facilities for X-ray

examination of the general population, and such examinations are considered a basic part of any progressive tuberculosis program. However, the survey of large groups of people is of no value unless there are facilities to re-examine those persons who show evidence of chest disease which are detected through means of the X-ray made on the mobile unit. This Section emphasizes the re-examination of all such persons, and in 1950 our follow-up technicians were able to re-examine, during and immediately after community-wide surveys, an average of 92% of persons who required X-ray examination in order to establish a definite diagnosis. The re-examination of persons with definite or suspected disease found during special surveys was not as successful as the re-examination of those persons detected with disease in community-wide or mass surveys. This was due in a large measure to the fact that it was not practicable for us to assign a follow-up technician to these special surveys.

It is our policy, in the case of community-wide or mass surveys, to conduct the so-called 14 x 17 X-ray clinics for a reasonable length of time after the survey has been completed. In some cases our personnel has remained in the area for this purpose as long as two months after the completion of the survey. Generally, it is necessary for the technician or technicians to remain in the area about one month. However, this is dependent on the wishes of the local health officer.

b. Equipment

The Tuberculosis Control Section owns 10 X-ray units. One of these is a portable 60 M. A. Westinghouse Machine which is used in the follow-up diagnostic clinics. One 70 mm. photo-roentgen machine is on loan at the Duke University Medical School Hospital, Durham and one of the same type units is on loan at the Baptist Hospital, Winston-Salem. Five 70 mm. photo-roentgen units are used for community-wide surveys and two of the same type are used for special surveys. One of the units assigned for special surveys has been in use by the U. S.

Army Recruiting Service in Raleigh since September, 1950 for the examination of Army inductees. Other equipment consists of eight tractor trucks, one Chevrolet carry-all, one generator, and spare X-ray parts. The Section has on loan X-ray equipment at the Wake, Mecklenburg, and Forsyth County Health Departments.

c. Method of Administration

In a community-wide survey four mobile X-ray units operate simultaneously, and a fifth unit is held in reserve to be used in case of break down. The central office in Raleigh furnishes the local health officer a report of those persons who should be re-examined on account of definite or suspected chest disease, as well as a report of those who have normal findings. X-ray pictures taken by the mobile units are developed and interpreted at the central office in Raleigh. The large picture, which is necessary to confirm the diagnosis, is developed at the site of the survey and forwarded to the Central Sanatorium, McCain, for interpretation.

d. Community-wide (Mass) & Special Surveys

Community-wide surveys have been conducted in 75 counties. In one county a special survey was conducted in which the results were equivalent to a community-wide survey and might properly be considered a mass survey. However, publicity and other measures incident to a community-wide survey were not conducted in the county.

One hundred twenty-six special surveys have been carried out, and the number of X-rays made ranged as high as 8,000. In these surveys one to two units were used.

It is our policy to schedule special surveys six months in advance. Community-wide surveys have been scheduled for 1952 and 1953; and by that time, providing there are no cancellations, one hundred counties will have been surveyed, eight of which will be re-surveys.

e. Personnel

Personnel totals twenty-three persons which includes:

- (1) Two doctors

- (2) Eleven X-ray technicians
- (3) One part-time consultant nurse
- (4) Seven clerks
- (5) Two health educators (one white, one negro).

Personnel has been reduced by three technicians during the current year on account of a reduction in the budget.

2. SURVEYS ACTIVITIES

a. Planning activities prior to carrying out community-wide surveys consist of two pre-planning conferences. These are held at the local health department or a place designated by the local health officer. The first conference is held six months prior to the survey, and the second conference two months prior to the survey. Persons who are invited to attend these pre-planning conferences are listed below:

- (1) The Health Officer and his staff
- (2) Representatives from:
 - a. The local Medical Society
 - b. County Commissioners
 - c. Board of Health
 - d. School Board
 - e. Local Tuberculosis Association
 - f. Local Power Company
 - g. County Demonstration Agents
 - h. County Welfare Representatives
 - i. Ministers of the Gospel
 - j. Members of Civic Organizations
 - k. Negro organizations and schools
 - l. Any other persons interested in Public Health

3. FINDINGS

a. Incidence of tuberculosis in Eastern North Carolina as compared to Western North Carolina.

The incidence of tuberculosis is over two and one-half times greater in Eastern North Carolina than in Western North Carolina.

X-ray surveys of 165,000 persons during the period 1946-1949 representing about an equal number of persons in each section is tabulated below:

Cases of tuberculosis found per 10,000 persons x-rayed in Eastern and Western areas of North Carolina by race.

Area	Total	White	Non-White
Eastern N. C.	148.7	171.9	114.8
Western N. C.	52.4	55.3	38.3

b. White and Non-White Rates (practically all non-white limited to the Negro Race)

It is of interest to note that of the total population examined by our mobile X-ray units there are more white persons who have tuberculosis than non-white. The non-white death rate is four times the white death rate, and the explanation for the low non-white morbidity is probably due to the fact that the non-white individuals x-rayed did not constitute a representative sample of the population.

Comparison of White and Non-White Tuberculosis* Mortality and Morbidity Rates North Carolina, 1947-1949.

MORBIDITY RATES

Year	White Rate Per 100,000	Negro Rate Per 100,000	Percent Negro Exceeds White
1947	80.4	137.4	70.9%
1948	71.0	124.4	75.2%
1949	75.0	120.7	60.9%

MORTALITY RATES

Year	White Rate Per 100,000	Negro Rate Per 100,000	Percent Negro Exceeds White
1947	15.4	61.1	296.8%
1948	13.0	51.4	295.4%
1949	13.6	52.8	288.2%

* All Forms

c. Comparison of Tuberculosis in Industry and Agriculture.

The incidence of tuberculosis among farmers is much higher than in industry as shown by the table below. In fact, the ratio of tuberculosis infection is over two and one-half agricultural workers to one industrial worker. These data are based on over 170,000 persons X-rayed.

Cases of tuberculosis found per 10,000 X-rayed by occupation and race.

Occupation	Total	White	Non-White
Industrial Occupations	62.3	65.0	36.9
Agricultural Occupations	168.1	204.6	121.4

d. Incidence of probably active and questionably active cases of tuberculosis.

Mass surveys conducted in 1949 in which over 170,000 persons were examined in Eastern and Western counties (89,836 East, 84,035 West) shows the following:

Probably or Questionably Active Cases of Tuberculosis Estimated Per 10,000 Persons Examined in Selected Eastern and Western Counties in 1949.

Total	25.6
Eastern Counties	29.0
Western Counties	22.0

e. Hospital Cases

(1) In 1949, in eight counties representing Western, Piedmont, and Eastern counties, the rate of hospital cases found per 10,000 examined on mass surveys was 10.2; and the incidence of "new" hospital cases was 9.7 per 10,000.

(2) In 1950, in fifteen Eastern counties the rate of hospital cases was 7.4 per 10,000 persons examined. These figures indicate that the tuberculosis hospital rate is declining.

f. The incidence of tuberculosis detected by the X-ray unit on loan to Duke Hospital.

These examinations included hospital admission, clinic cases, hospital personnel and certain other selected cases. The results of the Duke Hospital Program are as follows. The rate shown includes minimal, moderate, and far advanced cases:

Year	Rate per 10,000 examined
1948	390
1949	385
1950	191
1951 (first six months)	101

g. Incidence of reinfection tuberculosis, reinfection or suspicious tuberculosis and cardio-vascular abnormalities. Mass surveys (1950).

(1) In 1950, 33 persons per 10,000 examined during mass surveys were found to have minimal, moderate, or far advanced tuberculosis.

(2) Fifty-six persons per 10,000 had reinfection or suspicious tuberculosis.

(3) Seventy-one persons per 10,000 examined showed cardio-vascular abnormalities, principally enlargement of the heart.

h. College Students

There were 15,944 college students examined with the following results:

	No. Found	Rate per 10,000 Examined
Reinfection tuberculosis (active and inactive)	19	11.9
Suspicious tuberculosis	17	10.6
Cardio-vascular abnormalities	2	1.2

4. MORTALITY AND MORBIDITY

a. Mortality

The death rate from tuberculosis in North Carolina has decreased steadily for the past thirty-five years. In 1916, the death rate was 142.3 persons per 100,000 population which was slightly higher than the National rate. The 1950 rate in North Carolina was 18.4; and the number of residents who died from tuberculosis (all forms) was 748. The National mortality rate is estimated to be 22.2, and the total number of persons who died of this disease in the United States was 33,557.

In the Southern States in 1950, Florida's rate of 18.1 persons per 100,000 population was the lowest. North Carolina had the second lowest death rate of any Southern State. The death rates of Southern States and certain Eastern, Middle West, and Western States are tabulated below. These are provisional figures as reported by State Departments of Health.

MID WEST AND WESTERN STATES

Wyoming	3.8
Utah	6.8
Iowa	8.0
Nebraska	8.2
Idaho	9.4

**SOUTHERN STATES, HAWAII AND
PUERTO RICO**

Florida	18.1
North Carolina	18.4
South Carolina	19.8
West Virginia	20.5
Oklahoma	22.2
Delaware	22.3
Hawaii	22.8
Georgia	23.8
Mississippi	25.6
Texas	26.0
Virginia	27.5
Arkansas	31.3
Tennessee	33.3
Maryland	33.8
Kentucky	34.1
District of Columbia	49.1
Puerto Rico	128.1

EASTERN STATES

Connecticut	15.9
Maine	16.2
Pennsylvania	22.7
New Jersey	24.3
New York	25.5

Death rates in cities outside the United States are of considerable interest. The death rates per 100,000 population of certain large cities are tabulated below:

**CITIES OUTSIDE THE
UNITED STATES**

London (1945)	87
Berlin (1946)	260
Vienna (1945)	257
Rio de Janeiro (1942)	312
Rome (1945)	176
Copenhagen (1945)	49
Stockholm (1945)	60
Oslo (1945)	61

b. Morbidity or Case Rate

Although the death rate from tuberculosis has fallen steadily for many years, the morbidity has been consistently high. Community-wide chest surveys began in 1945, and these surveys may have stimulated more accurate re-

porting. The number of cases reported in 1950 was 3,653, which is the largest number reported in the history of the State. However, a smaller number of cases has been reported for the first six months of 1951 than was reported in the first six months of 1950. This decline in the number of cases may be due to variations in the reporting of cases of borderline significance. Again, it may mean that a peak has been reached for new cases; and that from now on, there will not be such a wide difference between the number of cases found and the number of deaths.

c. Mortality and Morbidity by Race.

The 1950 population of North Carolina was 4,061,929. The white population was 2,983,110 and non-white (mostly negroes) 1,078,819. The death rate for whites in 1950 was 10.0 per 100,000 population, and the death rate of non-white was 41.8.

The white morbidity rate was 69.5 per 100,000 population, and the non-white morbidity 146.5.

Both the death and morbidity rates among non-white is much higher than among the white population; but, as before stated, it has been found that the white population shows a higher disease incidence in community-wide X-ray surveys than does the non-white population. In all probability, a selective non-white group comes to the mobile units for X-ray. The Negro Health Educator resigned in June of this year, and another Negro Educator has recently been employed. It is hoped that more interest can be stimulated among the Negro Race in having X-ray examinations.

5. BUDGET

Appropriations both Federal and State are tabulated below:

1950-1951	
Federal	\$234,731.00
State	27,965.00
Total	\$262,696.00
1951-1952	
Federal	\$176,700.00
State	27,965.00
Total	\$204,665.00

The current appropriation represents a reduction of \$58,031.00. Of the total amount, \$93,615 has been allotted to other units of the State Board of Health and to local Health Departments concerned with tuberculosis control.

6. SUMMARY

Community-wide surveys have been scheduled for 1952 and 1953. Special surveys which include mental institutions, special groups such as teachers and those persons who require a health card; also schools, colleges and other groups selected by local health officers have been scheduled to May, 1952.

The general planning, in so far as community-wide surveys is concerned, is to complete the survey of those counties who have requested surveys and a resurvey of those counties who may apply. To date, two counties have had community-wide surveys for the second time. By the end of the present schedule, 100 counties will have been surveyed provided there are no cancellations, and eight of these will have had

surveys for the second time.

We expect to emphasize the survey of mental and other State institutions, and to conduct special surveys from an epidemiological stand point. The Halifax County special survey conducted in 1950 is an example of successful X-ray examination of known areas of infection.

Tuberculosis is not the health problem it was 25 years ago. The majority of cases now occur among older persons, although among young adults it is still a leading cause of death due to a more rapid reduction of certain other causes.

Control of the disease involves case finding, clinic, nursing, hospital, and laboratory services, health education, rehabilitation as well as welfare services and vital statistics. Control will not be found, as expressed by Dr's. Anderson and Blomquist of the U.S.P.H. "in the sum of case finding, medical care and social assistance—it will be found in the coordination of these activities, and in the manner in which they are knit together."

CHRISTMAS SEALS AT WORK IN NORTH CAROLINA

By FRANK W. WEBSTER, Executive Secretary
North Carolina Tuberculosis Association
Raleigh, N. C.

One of the flasher exhibits quite often displayed by tuberculosis associations carry this message, "Christmas Seals Work for You Year Round." And once in a while associations sum up for their readers *how* the seals do this. That is the purpose of this article.

Effective tuberculosis control includes among other things the following activities: case-finding, case supervision, treatment, rehabilitation, education and research. Christmas Seals are engaged in all the major tuberculosis control activities with the exception of treatment, which if participated in at all is done only in an emergency, for treatment is far too expensive to be taken care of with voluntary funds which are

spent with the idea of the greatest good for the greatest number. Because health education is the major function that the seals perform a look at the year-round activities in this phase of the program may suffice, as health education is the foundation upon which all of the other functions rest.

An appropriate beginning might well be with the association's staff. Each staff member is given an opportunity to learn the latest information in his field and he in turn participates in training programs for other workers. Special emphasis is given to the training of workers in local associations, both through planned programs and in field service.

Ever since seals have been employed

as a medium for fighting tuberculosis their importance in working with schools has been recognized. Today as in the past they are accepting challenging opportunities to make significant contributions to school health, using all of the schools—professional, medical, schools of nursing, colleges, high schools and even the elementary schools.

Professional schools are being aided in the organization and financing of study programs, by providing scholarships or fellowships and by assisting with special institutes, conferences and workshops. We are particularly proud of the special training courses that we have supported at the University of North Carolina and the North Carolina College at Durham. These courses include health education workshops, nurse training courses and for the past two years a course at Chapel Hill dealing with the social services of the tuberculous and his family. Students in the medical schools are supplied with special literature on tuberculosis. The tuberculosis problem in the state and the program for control are being interpreted to the students in many of the state's colleges. Fact-finding committees of high school students are promoted to create an interest on the part of the students and develop an appreciation for the efforts put forth in TB control. Case-finding is also promoted in high schools. In the elementary schools the policy has been to promote good general health practices. This has been attempted through in-service training for teachers. Recently the materials in the state adopted health textbooks have been supplemented. The efforts in the school are cooperative, and cooperatively we are seeking to greatly expand the school health program.

Mass media are employed also. Form letters go out to local associations over the state which treat a variety of subjects. The New Letter carries a column on "What's New" which describes new educational materials. Abstracts and bulletins are sent to local doctors and articles are prepared for newspapers and radio. Talks, consultation, movies, filmstrips, etc. are offered to PTA's,

Civic organizations and other special groups throughout the state. An informational service is maintained and fulfills unlimited requests for advice and recommendations on educational materials.

It was stated in the outset that education was the keynote in every phase of the program. In case-finding education has been almost the sole weapon employed by the seals on the state level. Seals in local communities supply in many instances the personnel, facilities and education for participation.

In terms of cost for hospitalization of a relapsed tuberculosis case, it is noted that the monetary involvement is usually doubled or tripled; making rehabilitation a must in meeting the needs of the tuberculous. Seals supplied grants for the initial program in one of the state sanatoriums. The Rehabilitation Committee of the North Carolina Tuberculosis Association holds periodic meetings to discuss and formulate plans for improving the state program.

Another phase of the program which the seals helps to make possible is that of research. There is no phase of tuberculosis which is not affected by research. It was research which was responsible for the discovery of the specific organism which causes tuberculosis—the tubercle bacillus; it was research which led to the discovery aid in the detection of tuberculosis—the X-ray; it was research, coupled with experience, which revealed the value of rest in tuberculosis treatment; it was through research that streptomycin and PAS were discovered—that undoubtedly better drugs for tuberculosis treatment will be found. Seals send research funds outside of the state but they return not only to enable research activities to be carried on within our own institutions but to bring results from the thirty-five medical research projects in 14 states and the District of Columbia.

The Seal Sale Campaign is the initial step that the seals take on their complicated journey of relieving human sufferings. We should not think of it in terms of dollars and cents alone. The Sale itself is an educational medium and

education is the foundation upon which the program rests.

The 1950 Seal Sale in North Carolina was \$422,204.46. Six per cent of this amount was sent to the National Association. The other 94 per cent was kept for work in North Carolina. Sixty-five thousand, three hundred fifty dollars and eighty one cents was budgeted to the North Carolina Tuberculosis Association for its program and the larger portion or \$331,522.17 is being spent on

local programs in the counties where the money was raised. Listed below are the expenditures of the NCTA for the last fiscal year:

Health Education and	
Information	\$30,925
Rehabilitation	2,392
Administration	3,296
Seal Sale	8,036
Research	4,222
Field and Organization	16,126

TUBERCULOSIS IN THE UNITED STATES YESTERDAY—TODAY—AND TOMORROW

BY DAVID T. SMITH

Professor of Bacteriology, Duke Medical School
Past President of the National Tuberculosis Association
Durham, N. C.

(Condensed from a talk given at the Annual Meeting of NTA,
Cincinnati, Ohio, May, 1951)

It is appropriate at the mid-century to look back at the accomplishments of the past 50 years, to evaluate the problems of today and to make plans for the next 50 years.

Progress made in the control of tuberculosis is truly phenomenal when measured by the decrease in the death rate. The rate has fallen from approximately 200 per 100,000 in 1900 to a provisional 22.2 in 1950. At least four major factors have contributed to this decline: (1) constitutional resistance with genetic selection and propagation of the more resistant individuals (2) a marked improvement in the general economic level of the population, (3) education of the public about the importance of an early diagnosis, and (4) the detection, isolation and treatment of the open carriers of tubercle bacilli. It is difficult, if not impossible, to evaluate the relative importance of these four factors.

Although the genetic factor is beyond our control there is evidence that it has been in operation a long time in Western Europe. The decline in death rate from tuberculosis as revealed by English statistics began many years before Koch

discovered the tubercle bacillus and before modern methods of isolation and treatment were introduced.

The importance of the economic factor can hardly be over-emphasized and yet we must confess our ignorance of the relative significance of environmental situations such as excessive labor, restricted recreation, inadequate housing and a poorly balanced diet. Some observations by Robinson during World War I and World War II suggest that a properly balanced diet is the most important single factor in increasing the resistance to tuberculosis. A study of occupational mortality groups by Whitney showed that the tuberculosis death rate in the poorest paid day laborers was seven times as high as among the professional groups. The minimal death rate from tuberculosis was not among physicians, as might have been expected, but among bankers, brokers and money lenders.

The educational campaign carried on by the National Tuberculosis Association and its affiliates has been very effective in removing the stigma from the diagnosis of tuberculosis and stimulating an

early investigation of suspicious symptoms; but its statistical effect in reducing the death rate cannot be calculated.

There is no doubt that the program of control stimulated by the founders of the National Tuberculosis Association has played a very large part in accelerating the decline in the death rate which had already been initiated by the genetic factor and reinforced by improvement in economic conditions. However, we cannot assign a numerical or percentage value to this program. In only a few isolated instances is it possible to study population groups where the genetic, racial and economic factors are really comparable. In such a situation here in North Carolina there was a lower death rate and a progressive decline in counties where all cases could be treated adequately.

Tuberculosis Today

After congratulating ourselves and advertising to the public our phenomenal success in lowering the death rate of tuberculosis from 200 per 100,000 to 22.2 per 100,000, we must admit that the death rate is not and never was an accurate measure of the importance of the tuberculosis problem. This statement is true even though tuberculosis remains the chief cause of death from disease in individuals between the ages of 15 and 34 and kills more people than all the other infectious and parasitic diseases combined. The deaths in 1950 of 33,557 individuals from a disease which is known to be preventable is indeed an appalling loss of human resources.

Our chief problem today is the living, not the dead. It is the living victims of tuberculosis who suffer physical pain and mental anguish, whose homes are broken, whose families are impoverished, and finally it is the living who spread the disease to healthy individuals. We do not know the actual number of cases of tuberculosis among the citizens of the United States. The studies by Edwards and Drolet in 1950 and the data compiled by Dempsey, indicate that the morbidity rate does not parallel that of the death rate.

The value of mass radiographic sur-

veys has been questioned on the grounds that the cost is excessive when divided by the number of active cases of tuberculosis discovered by this method. If we are thinking only of the individual patient, the cost might be considered excessive, but the primary object of the tuberculosis control program is the detection and isolation of the spreaders of the disease. One such apparently healthy spreader may easily infect a sufficient number of healthy individuals to cost the public eventually hundreds of thousands of dollars. There is also the educational value of a mass survey to be considered. Another defect pointed out is the possibility suggested by Dr. J. Arthur Myers and supported by Dr. Robert F. Young that those who respond to an invitation to have free X-rays are not truly representative samples and suggests that there might be even more tuberculosis of a more dangerous type in those who were not reached as in those who were studied.

The routine X-raying of all admissions to hospitals and clinics is giving a rate of 10-18 per 1,000 and shows many more moderately advanced and far advanced cases than does mass surveys of apparently healthy individuals. Calculations based on the most conservative figure of 0.6 per cent indicate that more than 40,000 unrecognized cases of tuberculosis are admitted to the general hospitals of the United States each year.

As of today, not one state or one county in the United States has an entirely adequate case-finding program and this statement includes those states and counties where the death rate is below 20 or below 10 per 100,000 as well as those with higher rates. In all of these areas there are unknown, undetected, open cases which are spreading the infection.

It is axiomatic that a case-finding program cannot function efficiently without an adequate number of sanatorium beds for the hospitalization of the active cases discovered by the survey. One survey published in 1950 shows that only six states had 2.5 beds per death and seven had less than 1. Present calculations indicate that the ratio

should certainly be at least 3 beds for each annual death. The number of new beds needed in the United States calculated on this ratio is 39,291 or approximately one-third more than we have at the present time. Even this number is a conservative figure and definitely lower than the 58,815 estimated as needed by the U. S. Public Health Service which made its calculations from the average number of deaths in the 1940-44 period.

Tuberculosis Tomorrow

Our plans for tomorrow must be subdivided into (1) the near future and (2) the distant future.

It is imperative that more comprehensive case-finding programs be formulated, adequate numbers of sanatorium beds be built, and effective follow-up and rehabilitation be provided. When this goal has been reached we can plan then the more distant future in which the tubercle bacillus will be eliminated.

In the past we have used the **death rate** as our guide to progress, although it was never an accurate measure of the magnitude of the problem. For the present we use the **case incidence**, or more precisely the case report rate, although we realize that many cases remain undetected and unreported. In the future we must focus on the amount of **tuberculous infection** in the population in contrast to **tuberculous disease**. Tuberculous infection is measured with the tuberculin test. Healthy individuals harboring virulent tubercle bacilli in their bodies have no symptoms and usually pass successfully all examinations including X-rays of the chest and yet they may become in a few months or years new active cases capable of spreading the disease to others. The ability to harbor living virulent tubercle bacilli in the body tissues without developing clinical tuberculosis is controlled partly by the genetic factor and partly by economic conditions. Of the two the latter is definitely more important. This was shown during World War I and World War II in the population of Western Europe where the genetic factor has been in operation for sev-

eral thousand years and yet during these war years, with their accompanying economic disruption, the death rate doubled and quadrupled. Our own population is not safe from a similar reversal of the case rate and death rate as long as living virulent tubercle bacilli are being harbored in the tissues of a considerable proportion of the population. In 1900 in urban areas nearly 100 per cent of individuals over 15 years of age gave positive tuberculin tests and even in rural areas 50 to 75 per cent of adults were positive. Large scale tuberculin testing 25 years ago, as a part of the then current case-finding programs, showed a decline to about 75 per cent in urban populations and 25 to 50 per cent in rural areas. Tuberculin testing as a case-finding method was abandoned in favor of mass radiography and so we lack current information regarding the tuberculinization of our people as measured by the tuberculin test.

On the basis of studies made showing tuberculin reactors in the different age groups, from 4.2 per cent to 20.2 per cent, if the extremely conservative figure of 10 per cent tuberculin reactors is multiplied by the total population of 150 millions, we find that at least 15,000,000 citizens may have virulent tubercle bacilli in their body tissues. A small, but unknown, percentage will develop clinical symptoms and an even smaller fraction will become disseminators of tubercle bacilli; but these 15,000,000 remain a potential danger to themselves and to their fellow citizens. **Hence, our goal for the future must be the reduction of the tuberculin reactors from 15,000,000 to 0.**

Universal B. C. G. vaccination is not the answer to the problem. The degree of immunity induced by B. C. G. vaccination is slight and transient. Furthermore, the artificial induction of a positive tuberculin destroys the value of tuberculin testing as a guide to our success in eliminating tuberculous infection from the population. The tubercle bacillus can be completely eliminated by our standard methods of detection, isolation and treatment provided these measures are applied with sufficient

vigor. Leprosy was eliminated from Western Europe during the latter half of the Middle Ages by the simple procedure of detection and isolation.

Contrary to popular opinion the eradication of tuberculosis is not "just around

the corner." We are scarcely half-way through the job and its completion will require as much effort, enthusiasm, and devotion as that expended by our predecessors in reducing the death rate from 200 per 100,000 to 23 per 100,000.

KEEPING FAITH

BY ROLAND L. GARRETT, President
North Carolina Tuberculosis Association
Elizabeth City, N. C.

A few years ago, three years to be exact, an article appeared in this Bulletin bearing the same title as the one you are now reading—"Keeping Faith." That article, among other things, referred to the faith of an American boy awaiting a visit from Santa Claus as compared to that of tuberculosis associations and committees in North Carolina awaiting the results of the Christmas Seal Sale. In each case there was an awarding of the faith.

Looking back to 1906 the year in which the North Carolina Tuberculosis Association was organized we can point with a degree of pride and humility to a program of tuberculosis control participated in, promoted and in some instances spearheaded by the North Carolina Tuberculosis Association. That program in which the association worked in cooperation with official and other voluntary agencies has wrought improvement in the tuberculosis situation in the state of which each of its citizens has a right to be justly proud. I refer to the constantly decreasing death rate; the discovery rate of 4.5 cases per death in North Carolina as compared with 3.6 for the nation, which is indicative of a much improved case-finding program; the earlier stages in which the disease is detected, signifying a more intensive education program; and the numerous attempts at rehabilitation necessary to help a patient readjust a community living.

Tuberculosis associations do not work in competition with official agencies charged with the responsibility of con-

trolling tuberculosis in a given area. Instead they are the lengthening shadows of a group of far-seeing men determined to organize their efforts towards strengthening the official agencies in their control of this dread disease. Unhindered by political ties and with funds donated specifically for the purpose they have pioneered in new fields and opened up new avenues necessary for the official agency's progress. As a team these agencies have "marshalled the power of science, shaped the knowledge and understanding of men in the fight against tuberculosis," and are attempting to design a pattern for future programs not of control but of eventual eradication.

Dr. Wade Hampton Frost expressed the possibility of eradication in 1935 when he stated, "Eradication of tuberculosis is now an expectation sufficiently well grounded to justify shaping our tuberculosis control program toward this definite end. We have reached the stage at which the biological balance is against the survival of the tubercle bacillus. If this balance can be maintained and the source of infection further reduced, the control of tuberculosis is within our grasp."

The tuberculosis associations, local, state and national, are dedicated to helping "maintain this balance" and at the same time to demonstrating newer activities in the field of tuberculosis control. These associations look forward to the day when tuberculosis is relegated to such an unimportant position that efforts to control it are no longer neces-

sary. It is this state of affairs and only this that should put limitation on their work. In view of concerted attempts to draw all voluntary agencies into one united fund drive for the support of their program, regardless of the nature of that program, those persons (and they are many) who want to see tuberculosis control continue on its forward march should "look before they leap." Look at the purpose for which the Seal Sale is conducted, not alone to raise funds but to help educate the masses. Look at the need—3,368 new cases in North Carolina in 1950 with all that discovery of cases entails education, case-finding, treatment and rehabilitation. Look at the associations' record of progress, education, demonstration, research. See how the funds are spent—according to the needs in the local communities—and strengthen their faith in the agencies that are attempting to hold the gains that have been made in TB control and carry forward to completion the unfinished task. In the face of diminishing returns, which the late Dr. Milton Roseneau warned against as we approach effective tuberculosis control, we must speed up and increase our efforts. The severity of tuberculosis as a contagious, crippling social destructive agent does not warrant our turning aside to accept the fads or satisfy the whims of those who see a little less

interference from those who promote the cause as a justification for setting the controls on who should **give**, when, and how and also who should receive what quota.

The very nature of tuberculosis demands that the people know. To fight the disease with knowledge is just as important now as it was when the decision to do so was made back in 1904 and in 1906 when the National and State Associations were organized respectively. The Christmas Seal Sale is an additional means of giving widespread information. Can we afford to miss any opportunity to reach the people with information about tuberculosis and the part that they must play as individuals and as communities in its eradication?

Keeping faith goes beyond the purchasing of Christmas Seals. It means acquainting oneself with the tuberculosis problem as it exists today. It means knowing the facilities that are needed for control, the use that's made of them and also the unmet needs. It means finding the place in which you can make your greatest contribution—it may be in case-finding, education, treatment, research, or rehabilitation. It may be in helping to keep your association free. Whatever the task, if we break faith, we lose "balance" and we, the people, suffer.

Deaths from Tuberculosis by County and Race: 1950

AREA	PLACE OF DEATH						PLACE OF RESIDENCE					
	Total		Respiratory		Other		Total		Respiratory		Other	
	White	Other	White	Other	White	Other	White	Other	White	Other	White	Other
Entire State	338	470	319	440	19	30	297	451	279	418	18	33
Alamance	2	3	2	3			3	5	3	5		
Alexander							2		2			
Alleghany	1		1				3		2		1	
Anson		3		3				4		4		
Ashe	2		2				2		2			
Avery	1		1				1		1			
Beaufort	1	5	1	5			2	10	2	9		1
Bertie	2	6	2	6			4	10	4	10		
Bladen		2		2				3		3		
Brunswick							1	3	1	3		
Buncombe	92	48	89	47	3	1	15	10	14	10	1	
Burke	10	1	10				2	2	2	1		1
Cabarrus		4		3		1	2	7	2	6		1
Caldwell	1		1				5		5			
Camden	1	1	1	1			1	1	1	1		
Carteret	4	1	4	1			4	2	4	2		
Caswell	1	1	1	1			1	3	1	3		
Catawba	2	1	2	1			5	1	5	1		
Chatham	2		2				2	2	2	2		
Cherokee	1				1		1				1	
Chowan		2		2				2		2		
Clay												
Cleveland	2	1	1	1	1		4	6	3	6	1	
Columbus	3	2	3	2			4	4	4	4		
Craven		6		6			1	8	1	8		
Cumberland	11	4	11	3		1	9	19	9	10		
Currituck							1		1			
Dare	2		1		1		3		2		1	
Davidson		3		3			1	7	1	7		
Davie	1		1				3		3			
Duplin	3	5	3	5			4	6	4	6		
Durham	9	24	7	19	2	5	6	18	6	17		1
Edgecombe	3	8	3	7		1	3	13	3	11		2
Forsyth	16	34	12	27	4	7	13	37	13	30		7
Franklin	1	1	1	1			5	3	5	3		
Gaston	3		3				3	2	3	2		
Gates		3		2		1		4		3		1
Graham	1		1				1		1			
Granville	2	3	2	3			2	5	2	5		
Greene	2	1	2	1			4	2	4	2		
Guilford	10	14	10	13		1	13	18	12	17	1	1
Halifax	4	7	4	1			6	12	6	11		1
Harnett	3	2	3	3			7	6	6	6	1	
Haywood							4		4			
Henderson	1		1				3	2	3	2		
Hertford		8		8				12		12		
Hoke	30	71	30	69		2	1	5	1	5		
Hyde								1				1
Iredell	2	2	2	1		1	3	2	3	1		1
Jackson	3		3				3		3			
Johnston	5	3	5	3			8	9	7	8	1	1
Jones		2		2				3		3		
Lee		1		1			1	2	1	2		
Lenoir	4	7	4	7			4	12	4	10		2

Deaths from Tuberculosis by County and Race: 1950

AREA	PLACE OF DEATH						PLACE OF RESIDENCE					
	Total		Respiratory		Other		Total		Respiratory		Other	
	White	Other	White	Other	White	Other	White	Other	White	Other	White	Other
Lincoln							1	1	1	1		
McDowell	1		1				1	1	1	1		
Macon		1		1			1	1	1	1		
Madison	3		3				4		4			
Martin		4		4				5		5		
Mecklenburg	6	20	5	20	1		6	16	5	16	1	
Mitchell	2		2				3		2		1	
Montgomery	1	1	1	1			1		1			
Moore		1		1			2	5		5		
Nash	4	12	4	11		1	4	12	4	11		1
New Hanover	2	7	2	7			5	14	5	13		1
Northampton	1	4	1	4			2	8	2	7		1
Onslow	1		1				3		3			
Orange		2		2			2	3	2	3		
Pamlico		2		2				3		2		1
Pasquotank		5		5				9		9		
Pender		1		1			2	1	2	1		
Perquimans												
Person	1	1	1	1			2	4	2	3		1
Pitt	3	8	3	8			5	13	4	13	1	
Polk												
Randolph	2		2				2		2			
Richmond	2	1	1	1	1		3	1	2	1	1	
Robeson	1	6	1	6			6	15	6	14		1
Rockingham	2	5	2	5			7	5	7	5		
Rowan	6	1	6			1	6	2	6	1		1
Rutherford	2		2				3		3			
Sampson	2	1	2	1			3	4	3	4		
Scotland		3		3			1	6	1	5		1
Stanly	1		1				1	2	1	2		
Stokes							2		2			
Surry	3		2		1		5		4		1	
Swain		2		2				2		2		
Transylvania												
Tyrrell		1			1		1	1	1			1
Union								1		1		
Vance	1	1	1			1	1		1			
Wake	21	12	21	10		2	9	14	9	13		1
Warren		1		1				3		2		1
Washington	1	1	1	1			1	2	1	2		
Watauga	2		1		1		3		2		1	
Wayne	3	53	2	52	1	1	9	9	8	9	1	
Wilkes	6	1	5	1	1		4	1	3	1	1	
Wilson	12	22	11	21	1	1	4	13	4	12		1
Yadkin							2		1		1	
Yancey	2		2				4		3		1	

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Published by THE NORTH CAROLINA STATE BOARD OF HEALTH

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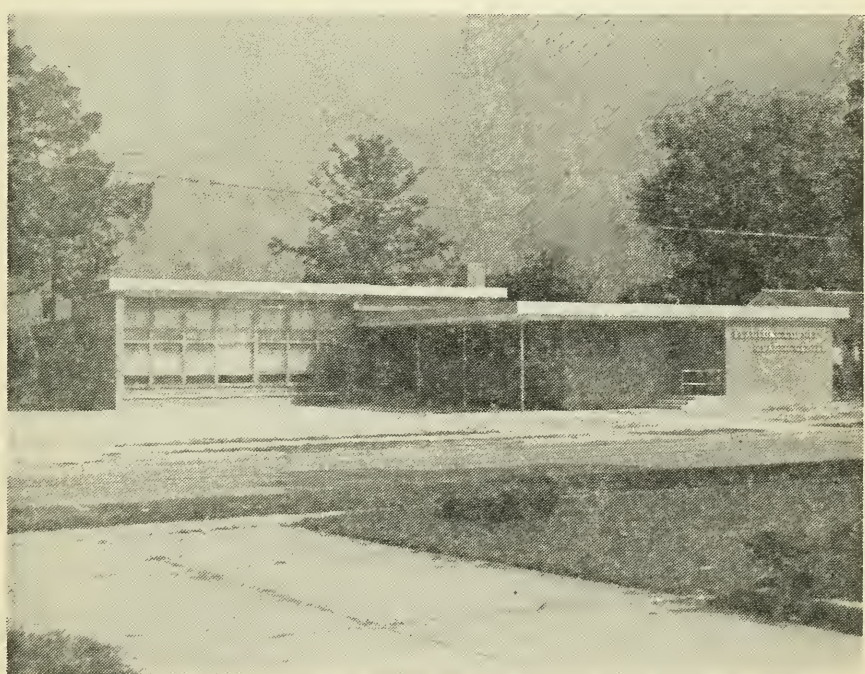
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Breast Feeding	Two to Six Years
Table of Heights and Weights	Instructions for North Carolina Midwives
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CONTENTS

	Page
Communicable Disease Control In Civil Defense.....	3
Sanitarian In Civil Defense.....	6
North Carolina Nurses In Civil Defense.....	11
Nutrition And Food In The Civil Defense Program.....	13
The Role Of The Health Educator In Civil Defense.....	14

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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

COMMUNICABLE DISEASE CONTROL IN CIVIL DEFENSE

C. P. STEVICK, M.D., M.P.H.

Director, Division of Epidemiology
North Carolina State Board of Health

There seems to be considerable difficulty in arousing interest in civil defense on the part of most governmental agencies and individual citizens.

We in the field of public health are probably much less affected by this lack of enthusiasm than is any other group because we have always had a strong feeling of urgency about strengthening and improving the health and well-being of the population, and, basically, a civil defense public health program is merely a sound and efficient peace-time program with certain changes in emphasis and a few additional responsibilities. This principle applies in particular to communicable disease control.

Communicable disease control for civil defense purposes requires consideration of the following pertinent factors:

Factor No. 1. Problems created by movements of the population during mobilization as well as following a disaster in a distant part of the country. I feel that both of these types of population disturbance should be considered as part of civil defense and that the effects of mobilization particularly require action now. Certain sections in the eastern part of North Carolina are already facing serious housing and sanitation problems. The local ratios of public health personnel to population

are becoming increasingly inadequate in those areas. The entire state is involved at this time in the movement of individuals and families in connection with military service and industrial employment. Such conditions as these set the stage for various communicable disease problems. Where housing and sanitation become extremely bad we might expect an increase in dysentery and other enteric diseases. Venereal diseases may increase. Meningococcus meningitis may become a greater problem. For the state as a whole, influenza, diphtheria, and pertussis are almost certain to increase.

Factor 2. Importation of diseases from foreign countries due to increased travel of civilian and military personnel, and the difficulty of maintaining adequate national quarantine procedures under emergency conditions. This is another problem we face right now. Up to September 1 we have had twelve Korean War veterans reported as having malaria relapses after returning to this state. Smallpox is now prevalent in many countries from which people are entering the United States. Several county health officers in this state have been notified in recent months of exposed persons visiting their areas who were subject to observation for the duration of their incubation periods. Yellow fever has recently ap-

peared in Central America. Encephalitis is another Korean problem which may affect us at any time, and many other diseases could be added to this list. During demobilization in 1945 North Carolina experienced a 123% increase in diphtheria over the previous year. Presumably, this was due to the return from Germany of service men who had become carriers as a result of the increased diphtheria incidence in Europe.

Factor 3. The increase in incidence of communicable diseases as a result of a local disaster. In such a case, the problems would be the same as those resulting from mass movement of the population, but on a more extensive scale and with fewer resources to combat them. In addition, lowered housing conditions and inadequate nutrition over a period of time are certain to be followed by rising tuberculosis rates. Flea-borne typhus fever and plague could become epidemic under extreme conditions.

Factor 4. The possible use of infectious disease agents by the enemy. This is still an unknown problem. The practical possibilities of this type of warfare are limited to airborne infection, certain diseases spread by insects and animals, and contamination of common vehicles such as food and water. There is little likelihood that an unlimited, self-propagating epidemic might be initiated by these or other means except as a terminal phase of massive disaster.

Accidental laboratory infections have demonstrated the possibility of air transmission of brucellosis, tularemia, Q fever, typhus fever, Rocky Mountain spotted fever, psittacosis, yellow fever, certain of the encephalitides, coccidioidomycosis, and many others. Certain of these diseases, once introduced by means of air transmission, could be spread further by animal and insect vectors. Our meat, milk, and poultry supply could be abolished in a comparatively short time by the introduction of rinderpest and foot-and-mouth disease of cattle, and Asiatic Newcastle disease of poultry. Water or food-borne

contamination of practical importance includes the well known intestinal infections, and possibly chemicals or biological toxins.

Communicable disease control measures of major importance in civil defense, in addition to sanitation, are: (1) Immunization of appropriate segments of the population with selected antigens; (2) Reduction of existing reservoirs of infection to as low a level as possible; (3) Observation for and prompt reporting of any unusual change in the pattern of communicable disease incidence so that appropriate control measures could be instituted.

It would be impractical to administer to every adult and child all of the various communicable disease antigens that are now available with the purpose of providing protection against all possible exposures in the future. Not only would this be unsound technically and administratively but also the public would probably offer very little cooperation at this time to such a plan, which could be properly designated "Operation Pin-cushion"!

Present recommendations are that we continue the current immunization policy with the development of a plan to immunize the entire population rapidly against actual disease hazards as they arise.

Late in January 1951 a strain of influenza virus was flown to this country from England. One thousand doses of a vaccine were prepared by one pharmaceutical company in 22 days and by another in 23 days. Previously, six months to a year would have been needed for such preparation. It has been estimated that as many as one million doses of this vaccine could have been prepared in five weeks. This event, together with the fact that New York City immunized 5,000,000 persons against smallpox in approximately twenty-five days, probably represents the pattern for emergency immunization of the future against certain diseases.

There is a definite nation-wide trend toward the administration of childhood immunizations at an earlier age than

formerly, and to the use of the triple combined antigen containing diphtheria and tetanus toxoids and pertussis vaccine. The immunization policy published in the May 1951 issue of the Health Bulletin is based on this trend.

A recently observed and unexpected, practical advantage of an immunization schedule early in the first year of life is that it probably minimizes the risk of local paralysis from concurrent poliomyelitis. The incidence of this disease in the age group under six months is extremely low.

Adult immunization should be limited to revaccination against smallpox at intervals of five to ten years, the typhoid fever only in endemic areas and among persons exposed to known carriers, and to Rocky Mountain spotted fever for individuals working in the woods or hunting frequently.

For the present time, it is much better public health practice to *decrease* the time spent on typhoid immunization and *increase* the time spent on diphtheria, pertussis, and tetanus immunizations of children, and smallpox vaccination of children and adults. If and when conditions deteriorate to a critical level, typhoid immunization can be begun on a mass scale and continued as long as necessary.

Renewed emphasis at this time on diphtheria immunization would be a "must" in this state under normal conditions and is even more urgent as part of civil defense preparation. The sudden increase of 123 per cent that we had in 1945 as compared to 1944 was accompanied by only a 21 per cent increase for the nation. The North Carolina diphtheria rate in 1949 was 13.7 cases per 100,000 population as compared to the national rate of 5.4, or about $2\frac{1}{2}$ cases for us to 1 for the United States as a whole. In 1950 the North Carolina rate dropped only slightly to 12.3 while the national rate dropped to 3.9, or slightly over 3 cases for us to 1 for the country. This state ranked tenth in size in the nation in 1950, but our total of 503 diphtheria cases was exceeded only by Texas with 900 cases. Alabama was third with 319

cases. If we do nothing else in the public health civil defense program, we must get busy on this diphtheria problem!

Tuberculosis and the venereal diseases are two of the most important reservoirs of infection in the population which must be reduced as rapidly as possible during the remaining period of grace before a possible disaster opens the gates for a return of these diseases to their former levels.

The most important possibility remaining for strengthening our venereal disease control program is the development of cooperation with private practitioners so as to make possible contact interviews of their patients. A North Carolina physician reported last year than an interview of *one* of his private syphilis patients led to a series of infected contacts who, in turn, were interviewed with the result that there were located the following previously untreated infections: 2 primary syphilis, 5 secondary syphilis, 4 chancroid, 4 lymphogranuloma venereum, and 3 gonorrhea. Every health department should also continue to give high priority to contact interviews of all clinic patients. Every person infected with a venereal disease is a source of valuable epidemiological information. We should act upon this information with the same urgency as we would evidence regarding a saboteur in our midst.

As one additional method of taking every advantage of all sources of information regarding infected persons, it is recommended that all health departments review all their existing venereal disease clinic records as soon as possible and recall all persons needing further follow-up before final discharge.

The tuberculosis control program can be greatly improved in efficiency by our taking advantage of the information obtained in Halifax County by Dr. Young relative to the pin-pointing of population groups for x-ray surveys and through the experience gained from the Duke Hospital mass x-ray survey.

By careful use of epidemiological data, Dr. Young increased the discovery

rate of active cases for a selected area of Halifax County surveyed in January 1950 to 1.8 per 1000, or exactly double the rate for that county in a routine mass survey in 1946. For details of Dr. Young's procedures, I refer you to his excellent article in the July 1951 Health Bulletin.

A photofluorograph unit assigned to Duke Hospital was used in x-raying 15,338 persons in 1950. These individuals were patients, visitors, and hospital personnel. There were discovered 9.9 cases of moderately and far advanced tuberculosis per 1000 persons. This is almost five times as high as the rate of 2.1 moderately and far advanced cases per 1000 persons found in the 160,133 non-hospital survey films taken in 1950. Every health department should study the possibility of cooperative continuous surveys in local hospitals. The small size of the hospital is not a deterring factor. Various types of arrangements can be made to provide this service at a reasonable cost.

Observation for unusual patterns of communicable disease incidence is a basic essential in preventing widespread outbreaks of naturally occurring diseases and for the early detection of possible attempts at biological warfare.

In order to make reporting somewhat easier, the Division of Epidemiology has prepared for consideration by the State Board of Health a new type of report card to be put into use on January 1, 1952. This card is intended to replace

the present three cards used to report communicable diseases. At the time of introducing this card to local physicians an ideal opportunity will exist for health departments to re-emphasize the need for careful reporting of all diseases presently required to be reported and any unusual appearance of any other disease.

Observation of school and industrial absenteeism, as well as hospital admissions by local health officers, industrial physicians, and private practitioners will be of help in the early detection of widespread illness. This probably can be done best by delegating a certain amount of responsibility to school, industrial and hospital personnel who have been properly instructed as to what information is needed.

All of the states of this country are now participating in an epidemic reporting system. North Carolina health officers were notified of this program on January 4, 1951, together with the request that reports be submitted promptly regarding the unusual incidence of any disease, whether on the reportable list or not. This reporting program, if properly emphasized by each state, will be of great mutual benefit to all. For this reason every private physician and public health worker as a member of the epidemiological intelligence corps has a responsibility in the reporting of diseases not only to his own community but also to the state and nation.

SANITARIAN IN CIVIL DEFENSE

By J. M. JARRETT, DIRECTOR

Sanitary Engineering Division

North Carolina State Board of Health

In considering the role of the sanitarian in Civil Defense activities, we are immediately reminded of the sanitation problems which may be created by any type of major disaster, such as floods, tornadoes, fires and earthquakes, as well as destruction wrought by war. Therefore, before we get into a de-

tailed discussion of the many items involved and the suggestions which have been made as to emergency or remedial measures which would need to be taken following a bombing or other destruction brought about by an attack by the enemy, we might list the major headings or topics which will be discussed

later on in this paper. Items which the sanitarian and sanitary engineer would be primarily concerned would be those relating to (1) water supply sanitation, (2) waste disposal, both domestic sewage and industrial waste, (3) the disposal of garbage and refuse, (4) milk sanitation, (5) food sanitation, (6) vector control, and (7) but not least of the group, the training of lay personnel to assist the sanitarians in connection with Civil Defense activities.

The training, not only of our own personnel, but of lay groups assumes major importance in the consideration of this problem. When we consider, for example, that work that was necessary in connection with the flood of a few years back on the Cape Fear River, at which time it was necessary to request the assistance of sanitarians from a group of counties throughout the State for work on this program, as I remember at that time, we recruited 19 or 20 men and they devoted a week or ten days to emergency work in connection with rural water supplies and rural excreta disposal. The district engineers and sanitarians from the State Board of Health spent more time in the area, and they were of course, involved with public water supplies, although the major time was devoted to those homes in the outlying areas and in the rural sections which depended on private water supplies and private methods of sewage disposal. Remember that here were 18 or 20 men devoting a week or ten days to primarily a rural problem in lowlands affected by the flooding of the Cape Fear River and we can visualize the number of men who would be needed and the enormity of the problem should a bombing attack occur on any of our major cities or towns. Other disasters in the State have called for the transfer and recruiting of those trained personnel available to assist with problems that had developed. We thought at the time that we were confronted with real problems. Dr. Young I am sure, when wrestling with the flood on the Roanoke River in Halifax County, was satisfied that he had quite

a problem, but we have not yet had a bombing.

Realizing that the first thing which we should do was to outline and briefly discuss the various items mentioned above with Civil Defense authorities in the State, we prepared for submission by Dr. Norton to the State Civil Defense Director an outline of the things which, in our opinion, should be covered. I should like to read this material to you because I feel that it does, to some extent, describe the size of the problems with which we would be faced.

Water Supply

During times of disaster brought about by war or otherwise, the health of an entire community may be seriously affected by an unsafe or inadequate water supply. It is paramount, therefore, that every measure be taken to assure the safety and adequacy of such supplies, since water must be furnished for domestic and industrial purposes in addition to the enormously increased quantities that may be required for fighting fires. Damage to water systems or interruptions of power will confront waterworks engineers with many critical problems. Preparations to meet these contingencies are essential steps in any plan for protection of the community in time of war. Procedures should be developed for emergency operation and control of waterworks and adequate facilities should be provided for making repairs, disinfecting mains, and restoring interrupted services.

The State Board of Health is particularly concerned with the technical matter of emergency operation and maintenance of plants and distribution systems; the establishment of emergency water service in the event of interruption of supply; the repair and disinfection of water mains and appurtenances; and, the augmentation of water supplies for fire protection. Other information which is of importance in planning to meet disaster conditions concerns the revision and improvement of distribution system maps and re-

cords; the location of pipes and detection of leaks; possible causes of contamination of water mains; emergency laboratory control, including treatment of water contaminated by atomic, bacteriological, or chemical warfare agents; and, the physical protection of plants and equipment from sabotage. The importance of restoring and maintaining water supplies following a disaster cannot be over-emphasized. In case of a bombing, it is quite possible that the public water supply would be made almost totally inoperable. In such case, not only would the distribution system be unable to deliver the quantity of water needed for fire fighting and other purposes, but it would also be subjected to gross pollution from sewage and other contaminating materials.

The basic considerations involved in the supplying of water to a community, whether in normal times or in times of disaster, are quantity and safety. In this State, the State Health Department has the responsibility of specifying the health standards of public water supply systems and in supervising the operation and maintenance of such systems. However, the waterworks operator and local water works officials are charged with the legal responsibility of serving only safe water. It would, therefore, be logical to expect the chief executives of local water utilities to assume civil defense responsibilities for maintaining the public water supply in times of disaster. It is, therefore, important that such officials should be given a permanent position in the local organization established for the protection of utilities.

Although the Civil Defense Health Services would not be primarily responsible for the quantity of water available following a disaster, the pressing need for large volumes of water for fire protection, regardless of source, must be recognized in developing a plan for civil defense protection.

The above describes in a general manner the activities relating to civil defense in connection with the water supply problem; however, such a pro-

gram should include activities in the following areas:

A. Coordination of the organization and training programs with other civil defense officials to insure adequate training in emergency and de-contamination measures.

B. Review modifications planned for existing water works to insure the inclusion of de-contamination measures, specifically, the installation of emergency disinfection equipment.

C. Review modifications in water works operation practice to insure maintenance of adequate free chlorine residuals throughout the system.

D. Develop improved measures against biological, chemical, and radio-active contamination.

E. Request the civil defense transportation service to survey mobile equipment that could be used to transport any de-contamination devices, equipment, and personnel.

F. Survey all extra disinfecting equipment available in the area and make plans for maintaining it in good repair. Inventory other equipment when necessary.

G. Takes steps to insure maintenance of a safe public water supply involving increased use of disinfectants at regular disinfecting stations, activation of emergency stations, use of portable disinfecting equipment, etc.

H. Insure the bacteriological safety of water hauled to hospitals, emergency feeding centers, first aid stations, and other sites where such emergency water would be required.

I. De-contamination measures should be conducted by Water Department Staffs. These should include testing to detect contamination of all types, followed by the proper treatment methods.

J. Developing security measures for plant protection.

K. Coordination of water works activities throughout the State by the State Board of Health.

Waste Disposal—Sewage and Industrial

The proper disposal of sewage and industrial waste is necessary for the protection of the public health at all

times. During times of an emergency this problem becomes increasingly important since the interruption of water services will render flush toilets non-operative and require the use of primitive methods of excreta disposal. Also, the disruption of treatment facilities for domestic sewage and industrial wastes may seriously impair the quality of the raw water available to municipalities at points downstream from the disaster. The health hazards associated with such problems are so important that supervision and sanitary inspection by the health department personnel will be absolutely necessary.

The health department program in connection with the above would consist of activities in the following areas:

A. Cooperate in providing emergency sewage disposal facilities including pit privies on vacant properties, can privies, excrement bags for large apartment houses and hotels, privies over man-holes, pumping units furnishing water to the plumbing system of apartment houses and hotels to remove sewage deposits in flush toilets.

B. Assistance in locating emergency equipment for use at municipal sewage treatment works.

Garbage And Rubbish Disposal

Garbage and rubbish disposal service will, undoubtedly, be one of the first municipal services to be affected in an emergency. The urgency for resumption of such service immediately will not be great except at evacuation centers, hospitals, and mass feeding stations. It would appear that surveillance of this service would be the legitimate concern of health departments during an emergency. In this connection, there should be investigated the establishment of sanitary landfills for use during an emergency period. The State Health Department through the Sanitary Engineering Division will assume the responsibility for instructing local health department personnel in methods of emergency garbage storage and disposal in order that they may cooperate more closely with the local service units concerned.

Insect And Rodent Control

The health department should take the lead in seeing that strict control measures are applied in areas where the public health is endangered by conditions promoting the increase of insect and rodent vectors of disease. The areas in which control will be applied are:

1. Warehouses and stores where food is stored and distributed.

2. Areas in which bodies might be placed for a period of time before burial.

3. Areas designated as dumping or incineration areas for garbage or rubbish.

4. Areas in which large numbers of pit privies might be set up.

5. Any area where rodent population presents a problem.

6. Emergency hospitals, evacuation centers, and rest areas.

In the event of an open physical attack, insect and rodent control would not constitute an immediate emergency problem, but extensive measure would be necessary following the attack. The demolition of storage warehouses and other buildings would provide food and harborage for rodents. Disruption of normal garbage storage, collection, and disposal facilities would cause increased breeding of both rodents and insects. Craters created by falling bombs would, in many instances, hold water and become mosquito-breeding places. All available resources, such as local health department personnel and pest control operators and lay volunteer workers should be organized, trained, and made available to assist in the control of the insects and rodents following attacks of this kind.

An immediate emergency would be created if biological warfare in the form of open attack or sabotage should take place, employing the etiological agent transmitted by insects or rodents. Supplies of rodenticides and insecticides, as well as equipment for their dispersal, should be maintained at strategic points as well as in a non-target area. This would also involve the train-

ing of lay personnel or others detailed to assist with this work.

Milk

It is recognized that there is a definite need for the preparation of a plan of action that can be followed by State and Local Civil Defense Organizations in developing a program of war-time civil defense as it relates to milk supplies. This plan should embrace the following areas of action:

1. Diversion of raw milk supply from war-time disaster areas to previously designated processing plants outside the target area and the distribution of the processed milk or milk product where needed.

2. Resumption of operations by undamaged plants in target areas and the rehabilitation of practically undamaged plants.

3. Training of auxiliary milk sanitation personnel and key milk processing plant personnel in methods of emergency operation.

4. Alternate methods for the treatment of raw milk in the event that pasteurization of the majority of the public supply is not possible.

5. Development of emergency standards covering the production and the processing of milk.

6. Education of the general public in the dangers of consuming raw milk and in the methods for the home treatment of such milk.

7. Substitution in disaster areas and in likely target areas of powdered, condensed and evaporated milk would improve milk supply.

8. Research on emergency methods for the treatment and preservation of milk, methods for the de-contamination of milk and milk products, including canned and packed products, and on the de-contamination of milk equipment.

Food

The importance of food sanitation to Civil Defense Health Services must not be overlooked. The public health responsibility should be limited to the sanitation aspect of the problem. Areas

in which action is needed to meet the problem are outlined below:

1. Compilation of pertinent information and statistical data and the analysis and evaluation of such data in order to arrive at a sound basis for a development of a plan of action and a determination of requirements for personnel, equipment, supplies, etc.

2. Preparation of a plan for each likely target area for the establishment of mass feeding centers.

3. Determination of requirements of equipment and supplies needed to implement the plan.

4. Selection and training of personnel from the restaurant industry and of lay personnel.

5. The maintenance of adequate food sanitation staffs in likely target area cities and near-by communities.

6. Development of emergency standards covering the preparation, handling, and serving of food and drink in disaster areas.

7. Education of the general public in emergency methods to be followed in the home for the preparation, preservation, storage, and use of foods under emergency conditions.

Housing

In the establishment of emergency housing facilities by other units of the Civil Defense Organization, the health department would certainly be expected to establish the standards of sanitation to be applied to such housing or shelter areas. The enforcement or application of any such standards established would, no doubt, fall upon the local health authorities as one of their local responsibilities. The coordination of this activity through the Sanitary Engineering Division would be included in our program of assistance or aid.

Referring again to training, the need for the provision of special training for Civil Defense workers in all branches of activity relating to health and sanitation should by now be recognized. In connection with the training of sanitarians and lay personnel and in connection with Civil Defense

measures, we have certain facilities already available through the school of Public Health, Field Training Center, at the University of North Carolina, and we also have as a nucleus a staff of trained people in this Division who could assist in the training of other field personnel. Also, because of our relationship with the Public Health Service, we are in a position to secure and disseminate the latest information with particular reference to special problems which may arise. Through our official connection and close relationship with other organizations, such as the North Carolina Section of the American Water Works Association, the North Carolina Waterworks Operators Association, and the North Carolina Sewage and Industrial Waste Association, we are in a position to work through these organizations with training and as a clearing house of information for those employed or engaged in municipal water supply protection and sewage treatment practices. We feel, also, that we could secure assistance from our State Restaurant Association and other organizations of that type who would be vitally affected and who cer-

tainly should be concerned with sanitation in Civil Defense.

In closing, I should like to also point out that the above brief outline covers the items on which we feel that some definite decision could be reached and in which a program might be developed. We also recognize that additional problems other than those mentioned above may be present in connection with atomic warfare, biological warfare or chemical warfare. At the present time, because of the fact that information in connection with these subjects has been restricted, we are not in a position to outline in a definite way other measures which should be considered in the manner in which we have discussed those listed above. As such information is released for public distribution, we shall, of course, be glad to work it into outline and render whatever assistance we can in connection with that phase of the Civil Defense Program.

As soon as time permits, we hope to meet with the various local sanitation personnel and, if possible, develop or formulate more concrete plans based on the above outline.

NORTH CAROLINA NURSES IN CIVIL DEFENSE

LOUISE P. EAST

*Chairman, Committee on Resources for Civil and
Military Nursing Needs*

N. C. State Nurse's Association

Nurses in North Carolina are taking and teaching courses related to Civil Defense. Widespread information is needed regarding defenses against the effects of an atomic bomb; how to keep disease from spreading and how to protect our food and water supplies. Each home owner should know how to safeguard the home. Thousands of individuals need to be taught safe methods of First Aid and Home Nursing. As long as the world is in its present chaotic state we will need Civil Defense, for modern warfare is directed as much against the home front as

against the military. The home front can not retreat! It is insurance against total confusion and inadequacy should war come. We are told on good authority that our enemy is strong, that enemy planes could reach every major city in the United States and that they could carry atomic bombs, nerve gas and biologic warfare to everyone's door step. General Hoyt Vandenburg, Chief of Staff of the U. S. Air Force believes that seven out of every ten enemy planes, attacking the United States, could get through to their targets in spite of our defending Air Force and

anti-aircraft installations. That is why Civil Defense is imperative. We can not prevent enemy attacks from happening, but we can prevent the enemy from completely demoralizing us.

Nurses in North Carolina, as well as nurses in all of the States, have begun the job of instructing all nurses in the State in "Nursing Aspects of Atomic Warfare." The course includes basic information about policies, responsibilities, communications, organization, etc. for many civil defense services and how nursing service would fit in with the total over-all program.

The present day Civil Defense program for nurses is based on atomic warfare. What will happen if atomic bombs fall on our cities? Why is an atomic bomb so destructive? How to survive under attack? What type of injuries would result from an atomic attack? What is radiological contamination? In addition to information regarding atomic warfare the course includes information on special weapons defense such as biological and chemical warfare.

Six North Carolina nurses were appointed by Governor Kerr Scott in January, 1951 to attend a teachers' course at Emory University, Atlanta, Ga., which was given under the auspices of the National Security Resources Board and the U. S. Public Health Service. The six nurses returned home and immediately contacted the State Medical Society, the N. C. State Nurses' Association and the State Civil Defense authorities. A teaching manual was formulated which was mimeographed and used in teaching two days institutes in Elizabeth City, Fayetteville, Wilmington, Durham, Wilson, Raleigh, Greensboro, Winston-Salem, Charlotte and Asheville. Three hundred and thirty three nurses received instruction which prepared them to teach in turn other nurses. To date approximately eight hundred nurses have had this instruction. Many classes are being taught during the Fall and Winter months and will continue until all of the approximately eight thousand registered nurses in North Carolina have

had an opportunity to enlist in this undertaking, which will be a safeguard to themselves and to the citizens of our State. Where classes have been taught in Hospitals, the instruction has been given, not only to registered nurses, but also to practical nurses, nurses' aides and to student nurses. Nurses have, in many places, shared this information freely with civic groups, P.T.A. organizations and others. The Army training films used have been shared with physicians, members of fire departments and police departments.

Civil Defense means that you protect yourself and others if trouble comes. We dare not wait until total disaster strikes to train personnel because it takes time and energy and funds. The nurses of North Carolina are indebted to the N. C. State Nurses' Association, the State Civil Defense organization and the State Board of Health for their support in making this instruction possible. The nursing committee which guided the program is grateful to all nurses who have given their time and talent in teaching the classes. The job is not complete and no one knows how much time is left. Instruction given at the institutes is only a beginning and time will bring changes in Civil Defense planning and development.

Nurses and all interested persons should keep up-to-date by ordering new reference material from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Local, State and National agencies are also releasing information which will help in understanding the nation's civil defense activities on all levels and to interpret them to others. The pamphlets which the U. S. Government has published and will continue to publish are especially helpful and, since they are "official," nurses can use information from them freely; there need be no question about their authority. The North Carolina State Nurses' Association has a State-wide Committee on Resources for Civil and Military Nursing needs, and twenty-two district committees. Some of the function of these committees are:

1. To formulate a program for nurses in Civil Defense that is coordinated with medical and allied services.
 2. To plan for the instruction of nurses to carry out the program.
 3. To secure from the twenty-two districts a complete roster of nurses, both active and inactive.
 4. To stimulate the recruitment of inactive nurses and arrange for refresher courses for them.
 5. Recruitment of nurses for Military nursing needs.
- Civil Defense is here to stay!
Without Civil Defense our State and Nation would be helpless should war come.

NUTRITION AND FOOD IN THE CIVIL DEFENSE PROGRAM*

BERTLYN BOSLEY

Chief, Nutrition Section

N. C. State Board of Health

Nutrition services are defined in the United States Civil Defense Manual and in the Health Services and Special Weapons Defense Manual as being "responsible for planning emergency diets and food priority systems. These diets and food priority systems would be used as guides for that branch of the welfare service responsible for supply food in an emergency period, following a civilian wartime disaster. Milk rationing would be the most urgent consideration."

"The duty of the nutrition services is to recommend types and amounts of food which should be available for emergency feeding of the general population and of special groups such as infants, children, pregnant women, the aged and patients with illnesses requiring special diets. The nutrition service would also recommend emergency diets for essential Civil Defense workers."

The Manual suggests further that the type of food served provide 2,000 to 2,200 calories a day, that it "be designed to allay hunger and maintain morals, that it be cheap, easy to prepare, of the kind customarily eaten by the population and that at least one food be served hot.

These general instructions provided the basis for the formation of a Food and Nutrition Advisory Committee of the State Civil Defense Program with

the approval of the State Civil Defense Director.

There are many groups in North Carolina that can contribute to nutrition and particularly to food service. The Advisory Committee was formed to permit all such organized groups interested in Nutrition and Food to plan together for this phase of the Civil Defense Program. The Committee consists chiefly of state associations, with a few exceptions. These exceptions are made to include persons who could provide valuable assistance but who might not be members of a state association allied with food interests. Representatives appointed from the following state associations and agencies are members of the Advisory Committee:

Home Economics Association
Hospital Association
Hotel Association
Dietetic Association
Restaurant Association
School Food Service Association
State Home Demonstration Service
State Board of Welfare
State Board of Health
The American Red Cross

*Presented at the North Carolina Public Health Association Meeting on September 13, 1951.

College Food and Nutrition Department

The North Carolina Association for Home Economists

Representatives of several other groups are to be invited to assist this Committee.

It was planned that each association or agency represented on the Advisory Committee be a member of the Civil Defense Committee in his respective state organization, thereby becoming the liaison agent between the Advisory Committee and the State Association.

The primary function of the State Advisory Committee is to serve (1) as a clearing house for the various matters pertaining to nutrition and food service, (2) to coordinate the plans of the various associations, to prevent duplication of effort and to provide a more efficient and effective service for the State and (3) to provide guidance in nutrition and food matters as requested by the State Civil Defense Director.

The Committee can report the following plans in progress:

1. A guide on planning for food and nutrition service has been prepared for the use of local civil defense chairmen. This is available to civil defense chairmen through the office of the State Civil Defense Director.
2. A register of trained dietitians is being secured by the Dietetic Association.
 - (a) This group will also prepare a suggested menu guide for use in hospitals and emergency

field centers for the injured.

3. A register of Home Economists with knowledge of quantity food service is being prepared by the Home Economics Association.
4. The State Board of Public Welfare is preparing a register of trained food service managers known in each county.
5. The Restaurant Association has appointed a committee which will gather information about suitable food centers and personnel.
6. The School Food Service Association will secure similar information as it relates to school lunch rooms.

(These registers will be checked for duplication and given to the State Civil Defense Chairman. They may be used as a beginning register by local directors or to supplement registers of local directors.)
7. The Red Cross has offered cooperation through its canteen committees.
8. The State Board of Health, through a committee will help set up nutrition standards.

- (a) It will also provide menu guides for state hospitals and institutions for feeding persons under restricted conditions, as for example if water and fuel are not available.

The Committee plans to make available materials which will be useful to local Civil Defense Directors. Requests should be sent to the Office of the State Civil Defense Director.

THE ROLE OF THE HEALTH EDUCATOR IN CIVIL DEFENSE

MISS ELIZABETH LOVELL

State Board of Health, Raleigh, North Carolina

Faced with the challenge of preparing for civil defense, public health educators have been somewhat like the newcomer to a rural community who joined the volunteer fire department.

One particularly pitch-black night the alarm clanged and the new volunteer rushed to the fire. The fireman gathered at a small house and leisurely unloaded the fire equipment. The new

volunteer grabbed a hose and began dragging it toward the house. It was too dark to see much, but he could smell plenty of smoke. "Quick," he shouted, "turn on the water".

One of the old-timers among the volunteers called back, "Easy there fella, let the fire burn up bright before we go to work on it. Cain't hardly see what we're doin' in this dark".

As with the volunteer fireman, we have certainly been aware of the "smoke," and for many months there has been a growing awareness on the part of public health educators of their own need for assessing their individual and collective potentials for Civil Defense. They have felt the necessity of working with Civil Defense leaders in order to acquire an accurate understanding of the total Civil Defense picture and to establish ways by which public health educators may fit in that picture.

Over the past year public health educators have seen themselves increasingly involved in Civil Defense activities. The Director of Public Health Education for the North Carolina State Board of Health has been assisting authorities in Asheville in the development of a coordinated program involving wide citizen-participation in planning. Public health educators are being called upon almost daily by lay and professional community groups in connection with Civil Defense—for information on CD, to help with film showings and discussions on CD, for the preparation of visual aids on CD, and to organize training courses for CD. Furthermore, many public health educators, working in groups which they themselves had helped to organize for action, have begun to see the potential of those groups in the total Civil Defense effort.

The public health educator movement began in the State in 1941 when North Carolina was chosen—primarily because of the vast cantonment areas in the State—for the first pioneer demonstration of public health education as a Civil Defense measure. The block plan utilized by Civil Defense forces

throughout the nation was first developed by a public health educator in Fayetteville, North Carolina.

There are today some *eighty* professionally trained public health educators scattered throughout North Carolina and employed in local health departments, schools, colleges, Tuberculosis Associations, the American Cancer Society, the Health Publications Institute, the State Medical Society, the Parent-Teachers' Association, etc. Other public health educators in the State not currently employed professionally would be available and willing to serve in Civil Defense.

State-wide, regionally, and nationally the past fifteen months have marked the participation of North Carolina public health educators in a number of half-day discussion sessions with Civil Defense leaders and public health educators from all over the country. Health education involvement in various aspects of Civil Defense has been cited and accented in these sessions.

The role of the health educator has been projected by the Research Committee of the N. C. Association of Public Health Educators as follows:

"After we have finished our training courses, most of us will be starting out to interest others in doing the Civil Defense job. We will want to help people become thoroughly involved. We want to stimulate them to action. We want to give them the right kind of information.

As we begin, we are convinced that if our Democracy is worth defending, it is worth defending democratically. If Civil Defense is thrown *at* people, or they are scared into doing what one person or a select group of persons thinks they should do, the Civil Defense structure may be weak, autocratic, and short-lived."

We have been forewarned by the Civil Defense authorities that Civil Defense may well be a program of many years' duration.

People are more likely to come out with the most important, long-lasting planning and action in Civil Defense if they are introduced first to the *whole*

picture of county needs, weaknesses, strengths and resources.

Many people involved in Civil Defense in the last war considered it a waste of effort because this country was not actually attacked, and because they were not helped to see preparation for defense as a basic means of strengthening their communities and counties for democracy as well as for emergency.

By using our best techniques, we can help people to take a look at the whole of what needs to be done to fortify a county or community. Then, if disaster and emergency needs disappear, people are not left just hanging. They still have reason to unite for constructive, community action. If war does not come, they will still be geared to move ahead.

The emergency of national security and preparedness is acute. We might find a correlary in the story of Uncle Ben, a native of western Carolina. Uncle Ben had a long white beard and a car almost as old as the beard. Ben drove the jalopy with all the trust of a doting father, but one day, as he dashed down a mountain road, the brakes suddenly failed. It was a question of steering the difficult trail or jumping. Uncle Ben didn't desert the ship.

The car flew down the mountainside in a roaring cloud of dirt and dust. Miraculously, Ben maneuvered it down

to a level road and the car shuddered to a halt, as the tires screeched and two blew out as a fitting end to the episode. Ben pulled what was left of his nerves together and got out of the car to survey the damage. Just then a forester came up. "Uncle Ben," he said sternly, "you were going too fast, do you know that?"

Uncle Ben looked his friend in the eye and replied "I never was one to hold with dilly-dallyin'."

We have started the roll down the mountain and when public health folks are faced with an emergency they've never been known to hold with dilly-dallyin'.

The people we know—ourselves included—in this atomic era need to cultivate sufficient courage, unity, and initiative to meet all challenges of the age. We feel the public health educators can help—by helping people to come together on their common problems, by helping people to obtain information they need, by working with people as they take steps necessary to resolve their problems, by helping them to see that only as they help themselves and each other can democracy survive. We believe that in making our contribution to Civil Defense we can, at the same time, build a stronger citizenry and State. We believe that Civil Defense can be far more than an emergency structure, that it can strengthen Democracy itself.



